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PRESIDENTIAL ADDRESS

JEAN GREGOIRE

THE VENEREAL DISEASE PROGRAM AND NATIONAL DEFENCE

R. A. VONDERLEHR

IMPROVING NUTRITION VIA THE FAMILY BUDGET

MARION HARLOW

THE NECESSITY OF PROVINCIAL PLUMBING CODES

AIME COUSINEAU

CHRONIC FATIGUE AMONG INDUSTRIAL WORKERS

R. VANCE WARD

PAPAIN DIGEST MEDIA

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CANADIAN PUBLIC HEALTH JOURNAL

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SEPTEMBER, 1941

Presidential Address*

DR. JEAN GREGOIRE

*Deputy Minister of Health and Social Welfare, Province of Quebec,
and President of the Canadian Public Health Association*

THE Canadian Public Health Association is delighted to welcome you here today. You have sensed the importance which must be accorded to health and, by your presence, you manifest your solicitude for everything that will assure the Canadian people of generations healthy, vigorous and fitted to fulfil the tasks which will be theirs.

There could be no hour more tragic than that in which we live at this time. We need a strong nation, a numerous and healthy people. Undoubtedly, ladies and gentlemen, you have encountered that basic truth, expressed by a renowned statesman of other days. He said: "The movement of a country's population remains the principal element in the economic, social, political and intellectual development of that country". The Canadian Public Health Association is devoting all its activities, all its efforts, to the protection and conservation of that element.

Hygienists of Canada have graciously confided to me the pleasant task of presiding over their organization during 1941. I thank them. Allow me, nevertheless, to say that I appreciate the fact that they have above all by that gesture wished to pay tribute to Canadians of the French tongue, and to emphasize the striking progress achieved by the Province of Quebec in the realm of public health during the past fifteen years.

In the thirty years that the Canadian Public Health Association has been in existence, it has become traditional that the president general deliver a speech at the annual convention. You will, I know, permit me the liberty of telling you, upon this occasion, what we are doing in the Province of Quebec. We have not always enjoyed the kindest of press comment. So I trust I shall not abuse

*Presented at the thirtieth annual meeting of the Canadian Public Health Association, held in Quebec, P.Q., June 9-11, 1941.

your indulgence by describing the work being undertaken here. It is probable that the picture will be new to some of you.

Besides, in the face of the danger threatening that civilization for which we fight, is it not opportune at this moment to examine our conscience? Allow me to emphasize: Whence do we come? Where are we now? Where are we heading? Or, if you prefer: STOP, LOOK, LISTEN!

Although the works of ancient authors, such as Hippocrates and Galen, yield us ideas upon hygiene, it was only in the 19th century that this science, like so many others, won a preponderant place in the general economy of nations. That is easily understood. The rapid multiplication of great centres led men to protect themselves first against epidemics, then against all avoidable diseases.

Long before, in the days when Canada was known as New France, protection of public health had been thought of; but it was only in 1887 that, for the first time, there was talk of practical preventive medicine in our province. The first report of the Hygiene Council of the Province of Quebec opens with these lines: "The smallpox epidemic of 1885-86 was, to the Province of Quebec, what cholera was to England in 1832; it led to the birth of the hygiene movement in this province. . . . Such was the origin of the hygiene law adopted in 1886 and of the formation, in 1887, of the Hygiene Council of the Province of Quebec, then composed of 8 members, Messrs. E. P. Lachapelle, president, R. F. Rinfré, H. R. Gray, C. E. Lemieux, J. B. Garneau, R. L. MacDonnell, Honourable A. H. Paquet and Elzear Pelletier, secretary. That law of 1886 was but a stepping-stone to future undertakings, the timidity of the legislators, apparent by a reading of the law, dared no more."

Those lines were written by the secretary of the time, Dr. Elzear Pelletier, whom we are privileged to greet here today; survivor of that heroic and nigh legendary period, he is still alert and always obliging. It is gratifying to me, today, to tender to him a respectful tribute, and the best wishes from all hygienists of the country.

Keen witness of the days that ensued, Dr. Pelletier could enlighten us as to the difficulties that the Council was forced to overcome in order to block the then triumphant march of epidemics of smallpox and diphtheria which, at that period, ravaged Quebec.

Public opinion was not easy to arouse; prejudices and charlatanism, fruits of ignorance and of misery, flourished in all the most diverse forms. They were to be found even in the highest circles of Canadian society. We should not be too easily astounded. When we study the origin of things which now appear to us wholly normal and soundly established, we soon discover the epic struggles that had to be fought to attain the progress today considered by us quite natural and nothing out of the ordinary. Pasteur was forced to exercise genial patience, phenomenal goodwill, to convince his fellow-men of the utility of immunization with vaccines. Even today, despite inventions like the radio or the automobile, it is surprising to learn that so many people still do not comprehend the importance of the scientific laboratory.

With a budget of \$5,000 Dr. Pelletier and his collaborators set to work.

"The mere advisory power conferred upon the Hygiene Council by the law of 1886 was insufficient to allow it to attain the objective it visualized. . ." What was needed was power to order the formation of health bureaux in municipalities and to draw up mandatory by-laws the execution of which would be confided to those bureaux. The Legislature accorded those powers in 1888, extended them in 1890, and, in 1894, with indomitable courage and clear vision worthy of the highest admiration, Dr. Pelletier and the other members of the Council made themselves the pioneers in hygiene and preventive medicine in the Province of Quebec.

For true understanding of the formidable task facing this group of public health servants, it must be remembered that, at the period in question, thousands of children died annually from diphtheria. Smallpox carved hideous gashes across the face of towns and countryside alike; and typhoid ravaged each generation. Our infantile mortality rate was astronomical. As in the celebrated fable, all of our people did not die but all were struck. The general condition was such that mature reflection leads toward the natural deduction that the present increase in deaths from heart diseases is perhaps, in part, due to all those epidemics which periodically decimated our people.

What, now, is to be said of prophylactic measures? Nobody suspected the real causes of these diseases. Nobody thought of protection against microbes which abounded in polluted waters. Chlorination and filtration of water, both essential measures, were unknown.

It goes without saying that pasteurization was immaterial. Whole families might die, but no one thought of laying the blame to contaminated milk, nor of having the cows examined. Vaccines and serums did not yet exist for us. Diphtheria, typhoid, meningitis were rampant. Forty years were to pass before those vaccines were to be perfected, both from the practical and the scientific standpoint.

The hygienist of today cannot conceive of the toil, the struggle, the devotion our predecessors were forced to bring to their task. Combating prejudice, ignorance and incredulity were but part of the greater fight the doctors had to undertake in the face of epidemics and diseases of every type. Never can sufficient homage be rendered to the self-denial, the perseverance and the energy of those men whose names, alas, are too often forgotten today.

Amid such conditions our hygienists hastened to create health bureaux in our municipalities and to limit ravages of contagious diseases by employing all that experience of the time placed at their disposal,—isolation and disinfection. What efforts, what struggles, and what patience were required to persuade our people that those two weapons would protect them!

Forearming the public against the perils of contagion, explaining communicable diseases, inculcating the principles of hygiene, accustoming all to new methods of self-preservation: that was the task.

But none can stay Science; and, for the contempt that has been heaped upon it, Science takes revenge by spreading wide its benefits. Vaccination against smallpox was a first and a heavy blow to epidemics. The discoveries of Koch

and other scientists opened the battle against phthisis. Later, dispensaries sprang up in our centres. Public health became the fashion and what America knows as engineering became a recognized factor of prosperity. In every domain of public health, inquiring minds discovered more and more effective preventive methods and the work of the Hygiene Council kept on expanding steadily. The health service of the Province of Quebec broadened out, so true is it that, once an idea is born, nothing can stop its progress nor limit its expansion.

All these efforts by pioneers in hygiene bore the happiest results, and were of great advantage to us, to the other provinces, as well as to the United States, to Europe and to India, where religion prescribes what hygiene exacts. At times, new generations of hygienists, like all other humans, tend to forget the labors of their predecessors, but they should never under-estimate the work of those who first led the way.

Allow me to give you some clear proofs of the success achieved in our province by untiring and devoted doctors. From 1900, new laws laid down the powers of the Hygiene Council, increased its authority, developed its organization, drew the public's attention to the pre-eminence of preventive medicine. The war of 1914-18 revealed the public health needs of our country.

By spoken and written words, hygienists aroused public sentiment. Universities collaborated with them. The clergy directed the keen eyes of leaders toward the new domain. Sanitary districts were created in the province. More and more doctors, specializing in hygiene, placed themselves at the disposal of the people. The fight was carried forward with greater effectiveness. The population grew more rapidly, while the mortality rate gradually decreased. The districts had grown to such an extent that when my predecessor inaugurated the first County Health Unit, in 1926, his initiative met with universal approval.

Thanks to the technical and financial support of the Rockefeller Foundation, for the first time our Province saw a health bureau equipped to serve a rural population. Who shall tell of the immense benefits acquired from these Health Units in the Province of Quebec? Never was public money better invested! Figures prove that. For the first time, the humblest country homes were to benefit by all the treasures in the storehouse of medical science. The visiting nurse went out to preach the new gospel: the art of keeping fit, of becoming fit.

Something is known of subsequent events, but is it sufficiently known? I do not think so. In the fifteen years between 1926 and 1941, the number of these Health Units increased; we now have 47 and 54 counties which benefit thereby. Soon, it is my wish and hope that all our rural population will be under the supervision of these excellent health bureaux.

Fifty medical officers, two hundred nurses, fifty sanitary inspectors, fifteen clinic physicians specializing in tuberculosis now devote all their efforts to protect public health; while almost as many technicians, both men and women, are spreading the hygiene doctrine in our towns.

The Health Department now is an independent ministry with its own minister; and to it has been added a section dealing with social welfare. It comprises twelve divisions, each developing year by year. To illustrate this,

allow me to refer to our new venereal disease law, which registers real progress. Each of these divisions, most of them but recently established, is headed by a competent and devoted director. More than 700 employees work in the Department of Health and Social Welfare. There may be some among you who, with certain irony, wonder what all those people can be doing. If I, too, adopted that vein I might well reply that they are all dispensing Charity—and I should be telling nothing but the truth. The Ministry of Health and Social Welfare is the Ministry of Generosity. We have but one objective: to alleviate bodily misery which often is the cause of enfeebled morale.

But we live in a world of positive people: so I will cite figures. Eloquent testimony of our work, these statistics constitute incontestable proof that the budgets voted us by the State are put to good use. The figures I will give you are for 1940. During that year, our Health Units immunized against diphtheria more than 75,000 children, between the ages of six months and ten years. More than 200,000 babies were visited regularly by our nurses. There is not a rural school that was not visited by our nurses and hygienists. Our tuberculosis specialists examined more than 25,000 people. I will not go into details regarding the countless vaccinations against smallpox and typhoid, but I may say that the hundreds of thousands of inspections carried out gave us an insight into the sanitation standards of different districts and made it possible to warn people and see that the necessary precautions were taken to avoid sickness, contagion and epidemics, where conditions were unhealthy. In our clinics and during home visits, several hundreds of thousands of babies were examined; and thousands upon thousands of mothers received advice. It would be unjust to overlook our laboratories, where the handling and analysis of some 200,000 samples kept our doctors, chemists, serologists and other experts working continuously.

Seeking out nests of contagion, tracking down contagious diseases, supervising food sources of all kinds demand unflagging perseverance on the part of our personnel. Think of the area of our province, of our scattered villages, our many parishes, the varied geographical conditions we have to encounter! Then you gain some idea of the amount of work entailed by the protection of public health in the Province of Quebec. Doctors and nurses must often remain away from home for several days when carrying on their work. Distances are long and June weather does not last the year round.

Every month, the same work recommences, the same questions arise and new problems crop up. Sudden changes of temperature, so frequent in each of our seasons, provoke new sickness often caused by imprudence. But the hygienist must never relax, must foresee what may happen, prepare himself accordingly, direct the work of each Health Unit in the manner calculated best to serve the region under his supervision.

There, at a glance, you have the work of our personnel. They are always ready to answer the call when needed. What results are we achieving? A comparison will convince you far better than any dissertation. What was the situation of public health in the Province of Quebec in 1926?

Tuberculosis carried off around 140 per 100,000 of our people. Of every

1,000 children born, around 130 died inside one year. Diphtheria and contagious diseases struck heavily at our little ones. Contagious and infectious diseases were far too prevalent.

How do our figures for 1940 compare with those of 1926? That, I believe, is the truest measure of our recorded results. These are the latest figures we have.

In fourteen years, our death rate from tuberculosis has fallen from 140 to 73 per 100,000 of population; or, in 1940, 67 persons less per 100,000 died of this disease. To put it in still another way: taking tuberculosis alone, in a single year we saved 2,000 human lives that would have been lost, had the rate of 1926 prevailed. This certainly shows an improvement.

Infantile mortality has diminished in similar proportions. The death rate in 1926 was around 130 per 1,000 births. Last year, it was 77, revealing a gain of 53 more survivors per 1,000 births. If you prefer it this way, in 1940, we lost 5,000 fewer babies than in 1926. In this latter year, diphtheria killed 800 children; in 1940, it had 250 victims, which is still too many.

Typhoid, which has left so many sad memories throughout our countryside, where it became a veritable reaper of human lives, caused the death of more than 500 people in 1926; in 1940, 120 died of it. More than 8,000 people have been saved from such a fate in recent years.

It was Dr. Dublin, I believe, who valued a human life at a minimum of \$10,000. Nobody will say he exaggerated. And if that valuation be admitted, it can be said that our Province saved \$80,000,000 worth of human capital that would have been lost in 1926. All the more taxpayers we have preserved for the Canadian Treasury! This is appreciable in wartime, it must be confessed. Would it not be opportune to increase that number each year, so as to spread over a larger part of the population the cost of government?

Is it necessary for me to say more, ladies and gentlemen? Do you not concede, without further ado, that the principles of preventive medicine are in perfect harmony with the practice of the highest moral, humanitarian and economic virtues?

Hygienists have not the temerity to claim for themselves alone the incomparable merit attached to this progress so truly useful to our country. They recognize the part played by their collaborators. As president of the Canadian Public Health Association, allow me to thank all those who, from the Atlantic to the Pacific in the United States and Canada, have assisted us by joining their efforts and their goodwill to ours for the greater protection of public health. Men in public life, welfare societies, leagues and associations who spare neither money nor time when preventive medicine and civilization are at stake—all have played their part in the progress made in the Province of Quebec, as in the development of the health organization of our country. Doctors, lawyers, engineers, industrialists, business men, merchants, brokers, priests, pastors of every religion, have all accomplished an enormous task, and the results achieved stand as a monument to their intelligent collaboration.

As Deputy Minister of Health and Social Welfare of the Province of Quebec,

allow me to thank, also, the people of this province for their goodwill. Physicians of the province have always manifested admirable esprit de corps in this domain. Never have the clergy refused their closest co-operation. Toward our bishops and priests, we have contracted a debt of the highest gratitude. All have done their share. The influence of our country priests, who have always aided our work in the most intelligent manner and have considered it their duty to announce our clinics and our visits to their parishes, has greatly eased our burden. Following their preachings on hygiene, many prejudices have disappeared, many fears have died.

Ladies and gentlemen, the work toward improved public health in the Province of Quebec in the past fifteen years has been considerable. The results we enjoy carry a meaning no one can doubt. But, if the road we have already left behind is long, the distance ahead is immense. In his immortal "Maria Chapdelaine", Louis Hémon wrote: "In the land of Quebec, nothing changes, nothing ought to change."

The measured pace of our evolution toward greater progress can be explained by the profound attachment of our whole being to things of the past. While our neighbours are building something new, we try to improve the things that are ours—and they are more than 300 years old. The Province of Quebec has witnessed the passing of from eight to ten generations of our ancestors, and Quebec's ancient walls, old houses, picturesque windmills are not mere souvenirs but for us, depict one thing: the irresistible attachment of the French-Canadian to his native soil.

That mentality, peculiarly ours, our fellow-citizen of the English tongue should attempt to understand, just as we try to comprehend his attitude, though his fondness for Canadian soil may not be as deeply rooted as ours. As for us, not only should we know how to perpetuate that mentality, we must also learn to preserve the body which is the seat of the intelligence. Physical health, never forget, is indispensable to intellectual and moral health. Already, we have done much to preserve and safeguard public health here, but the task is not finished. It would be audacious, I am inclined to think, to affirm that we have reached a normal situation from the view-point of health.

Scrutinize federal reports, and you will find that examination of recruits throughout the country reveals a large number of our young men unfit for military service. Of these, more than 80 per cent are handicapped by sickness or infirmity or defects which hygiene, properly respected, would have averted.

If our general death rate is 10 per 1,000 of population, it is none the less true that we lose twice as many people from tuberculosis as the other provinces. Our infantile mortality rate is almost double that of Ontario.

Because of our large families, it is certain that it would be difficult for us to attain rates covering death and prevalence of sickness obtained in some of the other provinces. It is pretty well admitted that a high birth rate corresponds closely to a high death rate. Needless to say, the probability of a higher rate of death or sickness resulting from an infectious disease is greater in a family of twelve children than in one where there is but a single child.

Economic factors: food, shelter, clothing, medical care, etc., are a drain on the family purse where large families are concerned.

Nevertheless, we can and we must lower the rates for infantile mortality, tuberculosis and contagious diseases. To do this, people must not rely entirely upon government effort: each citizen must shoulder his responsibility.

The education of our people in matters pertaining to public health will advance in the measure of support which the leading classes give to the Department of Health and Social Welfare in the realm of preventive medicine. May our leaders support the Canadian Public Health Association throughout Canada and our country will profit more and more by public health efforts!

Revolutions, good or bad, have always had their inner origin in the higher spheres of society. Every university should have a well-organized school of preventive medicine. By specializing in prevention, rather than in cure, the doctor of tomorrow will serve the highest interests of his fellow-men and his economic interest will in no way suffer therefrom. On the contrary, when everyone will have been convinced that the human machine, like any other machine, needs periodical overhauling, the doctor will be called upon to treat patients who are not sick. Success among his clients will be assured. A satisfied client pays better than a dissatisfied one. The undertakers, perhaps, may have grounds for complaint, though there will remain the ever-present charlatan to provide them with clients.

Our educators ought to hold strong ideas on hygiene and preventive medicine. The school is the most fertile field for sowing principles of hygiene and health. Teaching of hygiene ought to be on a footing with instruction in moral matters or in orthography. If sound souls are to be found in deficient bodies, I cannot imagine that the Creator would be any the less pleased at finding a sound soul in a well-developed body. To instruction in hygiene at school, we wish to give our greatest attention, but we need the co-operation of those who teach, and of that we are wholly assured. What is essential is that from its earliest infancy, the child should acquire habits of cleanliness, sobriety and good conduct which will guarantee his body the full exercise of its functions.

A better distribution of medical services too, is necessary for the realization of a good hygiene program in our province, as in Canada generally. To become convinced of this, it is sufficient to read the report of the federal-provincial investigation of relations between Dominion and provinces. The conclusions of Mr. Grauer, whether accepted in their entirety or not, deserve study.

The defective child should be able to obtain suitable treatment within reasonable distance, at reasonable cost. The mother who gives birth to a tiny Canadian in an isolated district ought to be given at least the attention accorded to the wife of any unemployed man in our towns. She should not be punished because she has had the courage to go out and earn her living far from the comforts of the city.

Now, at this time and despite the large sums which the government of this province is spending upon medical care, more than 1,200 municipalities, parishes or settlements are without a physician. It is said that the situation is about the

same in many provinces. It is something almost inconceivable in a civilized country. All members of society, if society there be, have the right to enjoy the fruits of science and the benefits of the art of Aesculapius. One of the bases of all society is the duty of seeing to the welfare of its members.

Of the 3,000 doctors composing our medical profession, 2,600 are established in cities and towns, and 400 in rural centres. What conclusions are to be drawn? Can such a situation endure? Everybody knows the economic and social dangers which threaten when there is undue disproportion between urban and rural populations; everybody is aware of the importance of distress in the hatching of revolt.

The way things are going, very soon the country doctor will be a thing of the past. I well understand that specialization, pushed to the extreme, and the development of public welfare institutions have dealt the country doctor a heavy blow. None the less, it is true that the country doctor, one day, will have to be re-established in his rights if we wish to avoid collapse within our economic structure or abandonment of many vocations linked with the soil.

It is not for the government alone to solve this serious problem. Faculties of medicine in our universities, the medical profession, the clergy, sociologists, economists and all those who interest themselves in the fate of the Province of Quebec, and of Canada as a whole, should study it, analyse and solve it.

Those who look askance at State-controlled medicine should, more than anyone else, feel the obligation of finding a solution in accordance with their principles. In particular, let them ponder the fate of the country doctor and the need for providing every settlement with at least one practising physician. Public health requires that, and social welfare among our people commands it.

Ladies and gentlemen, you will not hold it against me, I hope, if I have insisted somewhat in describing our situation, explaining the evolution of hygiene in the Province of Quebec, and in revealing to you the needs of the hour.

The progress made in Canada and in the Province of Quebec in the last century, the development of public health, the encouragement which hygienists have always received from men in public life, justify us in regarding the future as bright. For its part, the Province of Quebec, thanks to the sustained collaboration of the medical profession, with the support of the clergy and of leading classes, faces the future full of confidence and of hope, certain that it will be able to lengthen the span of human life and assure greater and greater vital force to its people.

Adresse Presidentielle*

DR. JEAN GREGOIRE

*Sous-Ministre de la Santé et du Bien-Etre Social, Province de Québec, et
Président de l'Association Canadienne de Santé Publique*

L'ASSOCIATION canadienne de Santé publique est heureuse de vous voir réunis ici aujourd'hui. Tous vous avez compris l'importance qu'il faut attacher à l'hygiène et vous avez voulu, par votre présence, manifester le souci que vous avez d'assurer à la population canadienne des générations saines, vigoureuses et aptes à remplir les devoirs qui lui incombent.

Il ne saurait se trouver d'heures plus tragiques que celles que nous vivons en ce moment. Nous avons besoin d'une nation forte, d'une population dense et saine. Vous vous êtes rendus compte, mesdames et messieurs, de cette vérité primordiale, exprimée autrefois par un homme politique de renom : "Le mouvement de la population d'un pays reste l'élément principal du développement économique, social, politique et intellectuel de ce pays". L'Association canadienne de Santé publique voulut toutes ses activités, toutes ses aptitudes à la protection et à la conservation de cet élément.

Les hygiénistes du Canada ont bien voulu me confier la tâche de présider leur société au cours de l'année 1941. Je les en remercie. Permettez-moi cependant de dire que j'estime que, par ce geste, ils ont surtout voulu rendre hommage aux Canadiens-français et souligner les progrès éclatants accomplis par la province de Québec dans ce domaine au cours des derniers quinze ans.

Depuis trente ans que l'Association canadienne de Santé publique existe, la tradition veut que le président général fasse un discours à l'occasion du congrès annuel. Vous me laisserez bien la liberté de vous dire à cette occasion ce que nous faisons dans la province de Québec. Nous n'avons pas toujours bonne presse. Ce n'est donc pas abuser de votre patience que de peindre l'œuvre qui se fait ici et il est probable qu'un tel tableau sera neuf pour plusieurs de nos concitoyens.

D'ailleurs, n'est-ce pas le moment de faire un examen de conscience en face du danger que court la civilisation pour laquelle nous combattons à l'heure présente? Faisons le point: D'où venons-nous? Où en sommes-nous? Où allons-nous? ou si vous le préférez: STOP, LOOK, LISTEN!

Bien que l'on puisse trouver dans les plus vieux auteurs, qu'il s'agisse d'Hippocrate ou de Galien, des notions d'hygiène, c'est au XIXème siècle que cette science, comme tant d'autres, a pris une place prépondérante dans l'économie générale des nations. Cela se conçoit aisément! La multiplication rapide des grands centres porta les hommes à se protéger d'abord contre les épidémies, et ensuite contre toutes les autres maladies évitables.

*Travail présenté lors de la trentième réunion annuelle de l'Association canadienne de Santé publique, qui fut tenue en la Cité de Québec, du 9 au 11 juin, 1941.

Déjà, au temps où le Canada s'appelait la Nouvelle-France, on avait songé à protéger la santé publique, mais ce n'est qu'en 1887 que, pour la première fois, on entend parler de médecine préventive d'une manière pratique dans notre province. Le premier rapport du conseil d'hygiène de la province de Québec commence par ces lignes : "L'épidémie variolique de 1885-86 fut, pour la province de Québec, ce que le choléra de 1832 a été pour l'Angleterre : elle donna naissance au mouvement sanitaire dans cette province. . . . Telle fut l'origine de la loi sanitaire adoptée en 1886 et de la formation, en 1887, du Conseil d'hygiène de la province qui fut alors composé de MM. E.-P. Lachapelle, président, R.-F. Rinfret, H.-R. Gray, C.-E. Lemieux, J.-B. Garneau, R.-L. MacDonnell, Honourable A.-T. Paquet et Elzéar Pelletier, secrétaire. Cette loi de 1886 n'était qu'un jalon planté dans une région nouvelle qu'il s'agissait d'explorer ; la timidité des législateurs, que la lecture de cette loi rend apparente, n'avait pas osé faire plus."

Ces lignes sont du secrétaire de l'époque, le docteur Elzéar Pelletier, que nous avons le privilège d'avoir parmi nous : survivant toujours alerte et obligeant de cette époque héroïque et presque légendaire. Il me fait plaisir, aujourd'hui, de lui présenter les hommages respectueux et les vœux les plus ardents de tous les hygiénistes du pays.

Témoin très lucide de ces temps révolus, le docteur Pelletier pourrait nous raconter les difficultés que ce conseil dut surmonter, afin d'enrayer la marche alors triomphante des épidémies de variole et de diphtérie qui sévissaient dans le Québec.

L'opinion publique n'était pas facile à remuer : les préjugés et le charlatanisme, fruits de l'ignorance et de la misère, fleurissaient sous les formes les plus diverses. On les retracait même dans les plus hautes sphères de la société canadienne. N'en soyons pas trop surpris. Lorsque l'on étudie l'origine des choses qui nous paraissent souverainement normales et parfaitement établies, on constate vite qu'il a fallu des luttes épiques pour conquérir les progrès qui nous semblent aujourd'hui les plus naturels, les moins extraordinaires. Il a fallu à Pasteur une patience géniale, une volonté phénoménale pour convaincre les hommes de l'utilité de l'immunisation par les vaccins. Encore aujourd'hui, malgré des inventions comme la radio ou l'automobile, on serait surpris de savoir que trop de gens ne comprennent pas l'importance d'un laboratoire scientifique.

Avec cinq mille dollars pour tout partage, le docteur Pelletier et ses collaborateurs se mirent à l'œuvre. "Le seul pouvoir d'aviser, conféré au Conseil d'hygiène par la loi de 1886, n'était pas suffisant pour lui permettre d'atteindre le but qu'il poursuivait. . ." Il lui fallait le pouvoir d'ordonner la formation de bureaux d'hygiène dans les municipalités et de faire des règlements obligatoires dont l'exécution fut confiée à ces bureaux. La Législature accorda ces pouvoirs en 1888, les étendit davantage en 1890 et en 1894. "Avec un courage indomptable et une clairvoyance digne d'admiration, le docteur Pelletier et les autres membres du Conseil se firent les pionniers de l'hygiène et de la médecine préventive dans notre province.

Pour comprendre le travail formidable qui incomba à cette pléiade de serviteurs de la santé publique, il faut se rappeler qu'en ce temps-là des milliers

d'enfants mouraient chaque année victimes de la diphtérie. La variole creusait des vides effarants dans nos villes et nos campagnes et la typhoïde ravageait chaque génération. Le taux de notre mortalité infantile était astronomique. Comme dans la fable célèbre, nos gens ne mouraient pas tous, mais tous étaient frappés. Le mal était si grand qu'à y bien réfléchir, on est naturellement porté à croire que l'augmentation des décès causés de nos jours par maladies du cœur est peut-être dûe, en partie, à toutes ces épidémies qui décimaient périodiquement nos populations.

Que dire maintenant des mesures prophylactiques? Personne ne soupçonnait les causes réelles de ces maladies. On ne songeait pas à se protéger contre les microbes qui foisonnent dans les eaux polluées. La chloration et la filtration des eaux, mesures essentielles, étaient inconnues.

Il va sans dire que la pasteurisation ne faisait ni chaud ni froid à personne. Le lait pouvait tuer des familles entières, personne ne lui en tenait rigueur et la responsabilité des vaches était au-dessus de tout soupçon. Vaccins et sérum n'existaient pas encore pour nous. La diphtérie, la typhoïde, la méningite exerçaient leurs ravages sans rencontrer d'obstacles. Quarante ans devaient s'écouler avant que ces vaccins soient mis à point tant au point de vue pratique que scientifique.

L'hygiéniste aujourd'hui ne peut s'imaginer le travail, la lutte, le dévouement que durent apporter dans leur tâche leurs prédécesseurs. Combattre les préjugés, l'ignorance et l'incroyance, voilà ce que les médecins du temps devaient faire tout en luttant contre les épidémies et les maladies de toutes sortes. On ne rendra jamais assez hommage à l'abnégation, à la persévérance et à l'énergie de ces hommes dont on oublie trop les noms aujourd'hui.

C'est dans ces circonstances que nos hygiénistes s'efforcèrent d'établir des bureaux d'hygiène dans nos municipalités et essayèrent de limiter les ravages des maladies contagieuses en utilisant ce que l'expérience de l'époque mettait à leur disposition : l'isolement et la désinfection. Que d'efforts, que de luttes, que de patience pour persuader les populations que ces deux armes pouvaient assurer leur protection!

Prémunir le public contre les périls de la contagion, lui indiquer les maladies communicables, le tenir au courant des progrès de la science médicale préventive, lui inculquer les principes d'hygiène, l'habituer aux nouvelles méthodes de préservation, voilà ce qu'il fallait faire.

Mais nul ne peut arrêter la science et elle se venge par des bienfaits du mépris dans lequel on la tient. La vaccination contre la variole fut un premier et rude coup porté aux épidémies. Les découvertes de Koch et des autres savants permirent d'engager la bataille contre la phthisie. Plus tard, des dispensaires de dépistage surgirent dans nos divers centres. La salubrité publique devint à la mode et ce que l'on appelle en Amérique le génie sanitaire devint un facteur reconnu de prospérité. Dans tous les domaines de la santé publique, des esprits curieux découvrirent des méthodes préventives de plus en plus efficaces et le conseil d'hygiène suivit la courbe ascensionnelle : le service de santé de la province

de Québec se développa, tant il est vrai que rien ne saurait arrêter une idée en marche ni mettre un terme à l'action une fois qu'elle est née.

Tous ces efforts des pionniers de l'hygiène eurent chez nous comme dans les autres provinces, comme aux États-Unis, comme en Europe, comme aux Indes où c'est la religion qui prescrit ce que l'hygiène exige, des résultats heureux, des conséquences avantageuses. Parfois, les nouvelles générations d'hygiénistes comme tous les humains ont tendance à oublier l'œuvre de leurs prédecesseurs, mais il ne convient pas de les laisser sous-estimer le labeur de leurs devanciers.

Souffrez que je vous donne quelques preuves évidentes des succès obtenus dans notre province par des médecins dévoués et généreux. A compter de 1900, des lois nouvelles précisèrent les pouvoirs du conseil d'hygiène, augmentèrent son autorité, développèrent son organisation, attirèrent l'attention du public sur l'excellence de la médecine préventive. La guerre de 1914-18 jeta une lumière plus crue sur les besoins de notre pays.

Par leur parole et par leurs écrits, les hygiénistes éveillèrent le sentiment public. Des universitaires collaborèrent avec eux. Le clergé attira la perspicacité des chefs de file vers ce domaine. Des districts sanitaires furent créés dans la province. Des médecins hygiénistes plus nombreux se mirent au service des populations. La lutte se fit avec une plus grande efficacité. La population augmenta plus rapidement, tandis que la mortalité diminuait peu à peu. Les districts devinrent trop grands, si bien que mon prédecesseur, le docteur Alphonse Lessard, eut l'appui complet de toutes les classes de la société quand il inaugura dans la Beauce en 1926 la première Unité sanitaire de comté.

Grâce à l'appui technique et financier de la Fondation Rockefeller, on vit pour la première fois dans notre province un bureau de santé en mesure de desservir une population rurale. Qui dira le bien immense accompli par les Unités sanitaires dans la province de Québec. Jamais deniers publics ne furent mieux placés! Les chiffres en font foi. Pour la première fois, les foyers les plus humbles de nos campagnes allaient bénéficier de tous les trésors de la science médicale. L'infirmière visiteuse d'hygiène allait prêcher un évangile nouveau: celui de l'art de rester bien portant ou de le devenir.

On sait ce qui s'est passé depuis, mais le sait-on suffisamment? Je ne le crois pas. Dans l'espace de quinze ans, c'est à dire de 1926 à 1941, le nombre de ces Unités sanitaires s'est accru: nous en avons maintenant 47, et cinquante-quatre comtés bénéficient de ces organismes indispensables. Bientôt, je le souhaite et je l'espère, toute notre population rurale sera sous la surveillance de ces excellents bureaux de santé.

Cinquante officiers médicaux, deux cents infirmières, cinquante inspecteurs sanitaires, quinze cliniciens en tuberculose consacrent toute leur énergie à la protection de la santé publique, tandis qu'un nombre à peu près égal de techniciens et de techniciennes s'occupent de répandre l'hygiène dans nos villes et d'y assurer la salubrité publique.

Le département de la Santé est maintenant un ministère indépendant avec son propre ministre et il s'est adjoint une section de bien-être social. Il compte

douze divisions qui prennent chaque année plus d'ampleur. Qu'il me suffise pour le démontrer de faire allusion à notre nouvelle loi des maladies vénériennes qui marque un progrès réel. De création récente pour la plupart, chacune de ces divisions compte à sa tête un directeur compétent et dévoué. Plus de sept cents employés font partie du département de la Santé et du Bien-Etre social. Il y en a sans doute parmi vous qui se demandent avec une pointe d'ironie ce que tout ce monde peut bien faire. Si je voulais être malin, je répondrais la charité et ce ne serait que la vérité. Le ministère de la Santé et du Bien-Etre social, c'est le ministère de la générosité. Nous n'avons qu'un but: le soulagement de la misère physique qui est souvent la cause de la misère morale.

Mais, puisque nous vivons dans un univers de gens positifs, je vous citerai des chiffres. Ce sera moins gai, mais plus éloquent. Témoignages probants de notre travail, ces chiffres constituent à eux seuls la preuve non équivoque que les budgets mis à notre disposition par l'État sont bien utilisés. Permettez-moi de me borner aux statistiques de 1940. Durant cette année qui vient de finir, nos Unités sanitaires ont immunisé contre la diphtérie plus de 75,000 enfants de six mois à dix ans. Plus de 200,000 bébés furent régulièrement visités par nos infirmières. Il n'y a pas une école de nos régions rurales qui n'ait reçu la visite de nos gardes-malades et de nos médecins hygiénistes. Nos spécialistes en tuberculose ont fait l'examen de plus de 25,000 personnes. Sans s'arrêter aux innombrables vaccinations antivarioliques et antityphoïdiques, rappelons que des centaines de mille inspections de toutes sortes permirent de vérifier l'état sanitaire de nos différentes régions et de prémunir, le cas échéant, les familles contre la maladie, la contagion et les épidémies. Dans nos cliniques de puériculture, comme lors des visites à domicile, plusieurs centaines de mille bébés furent examinés; des milliers et des milliers de mères de famille reçurent des conseils appropriés. Il ne serait pas juste d'omettre le travail de nos laboratoires où la manipulation et l'analyse de 200,000 échantillons ont tenu nos médecins, nos chimistes, sérologistes et autres experts en haleine.

La recherche des foyers de contagion, le dépistage des maladies contagieuses, la surveillance de toutes les sources d'alimentation exigent une persévérance inlassable de la part de notre personnel. Songez plutôt à l'étendue de notre province, à la dispersion de nos villages, au nombre considérable de nos paroisses, aux conditions géographiques variées! Vous vous rendrez alors compte de la somme de travail que représente la protection de la santé publique dans la province de Québec. Que de fois, infirmières ou médecins hygiénistes doivent se tenir loin de chez eux pendant des jours pour accomplir leur tâche. Les distances à parcourir sont énormes et la température de juin ne dure pas toute l'année.

Chaque mois, le même travail recommence, les mêmes questions se posent, souvent des problèmes nouveaux surgissent. Les écarts de température, si fréquents dans chacune de nos saisons, provoquent de nouvelles maladies, souvent causées par des imprudences, mais l'hygiéniste doit veiller au grain, prévoir ce qui surgira, se préparer en conséquence, orienter le travail de chaque Unité sanitaire dans le sens le plus convenable à la région où il se trouve.

Vous avez là un bref aperçu de ce que notre personnel fait. Toujours sur

la brèche, il se bat contre la maladie. Quels résultats obtient-il? Vous vous le demandez sans doute! Une comparaison vous éclairera mieux qu'une dissertation. Quelle était la situation au point de vue santé publique en 1926 dans la province de Québec? La voici:

La tuberculose nous enlevait environ 140 personnes par cent mille de population. Pour mille enfants qui naissaient, il nous fallait en enregistrer 130 qui décédaient avant d'avoir atteint l'âge d'un an. La diphtérie et les maladies contagieuses opéraient annuellement une saignée formidable parmi notre population enfantine. La morbidité pour toutes les maladies contagieuses et infectieuses était encore très élevée.

Comment nos statistiques de 1940 se comparent-elles avec celles de 1926? Voilà, je crois, ce qui illustrera le mieux le travail accompli! Les chiffres qui suivent sont les plus récents que nous possédions.

En 14 ans, notre taux de mortalité par tuberculose est tombé de 140 à 73 par cent mille de population. Pour ceux qui ne sont pas du métier, ceci veut dire qu'en l'an de grâce 1940 il est mort 67 personnes de moins de tuberculose par cent mille habitants.

Autrement dit, et seulement quant à la tuberculose, en une seule année, nous avons sauvé deux mille vies humaines que nous aurions perdues en 1926.

La mortalité infantile a décrû dans des proportions analogues. Le taux des décès en 1926 était de 130 environ par mille naissances. L'an dernier, il était de 77, ce qui indique un gain de 63 survivants de plus par mille naissances, ou si vous aimez mieux, nous perdons 5,000 enfants de moins en 1940 qu'en 1926. Cette année-là, la diphtérie emporta 800 enfants. En 1940, elle ne fit que 250 victimes.

La typhoïde, qui a laissé tant de tristes souvenirs dans nos campagnes où elle était devenue une véritable faucheuse de vies humaines, causa la mort de plus de 500 personnes en 1926 et de 120 en 1940. De tout cela, il ressort que plus de huit mille personnes ont échappé à la Parque fatale au cours de ces dernières années.

C'est le docteur Dublin, je crois, qui évaluait une vie à un minimum de dix mille dollars. Personne ne dira qu'il exagère et cependant, si l'on admet cette évaluation, on peut dire que notre province a économisé \$80,000,000 de plus en 1940 qu'en 1926. Ce sont là autant de payeurs de taxes que nous avons conservés au fisc canadien. C'est appréciable en temps de guerre, avouons-le. Ne serait-il pas opportun d'augmenter ce nombre chaque année, afin de répartir sur une plus grande population le coût de l'administration publique.

Ai-je besoin d'en dire davantage. Admettons immédiatement que les principes de la médecine préventive sont en parfait accord avec la pratique des plus hautes vertus morales, humanitaires et économiques?

Les hygiénistes n'ont pas l'audace de revendiquer pour eux seuls les mérites incomparables de ces progrès vraiment utiles à la patrie. Ils reconnaissent la part de tous leurs collaborateurs. En qualité de président général de l'Association canadienne de Santé publique, permettez-moi de remercier tous ceux qui, au Canada et aux États-Unis, de l'Atlantique au Pacifique, ont uni leurs efforts aux

nôtres, leur bonne volonté à la nôtre pour assurer la protection de la santé publique. Les hommes publics, les sociétés de bienfaisance, les ligues et toutes les associations qui ne ménagent ni leurs deniers ni le temps de leurs membres quand il s'agit de médecine préventive et de civilisation, ont leur part dans les progrès accomplis par la province de Québec, comme dans le développement des organismes sanitaires de notre pays. Médecins, avocats, ingénieurs, industriels, commerçants, courtiers, prêtres, pasteurs de toutes religions et de toutes catégories, ont accompli une tâche incomparable, et les résultats obtenus le furent grâce à leur intelligente collaboration.

A titre de sous-ministre de la Santé et du Bien-Etre social de la province de Québec, permettez que je remercie également les québécois de leur bienveillance. Les médecins de la province ont toujours manifesté un esprit de corps admirable dans ce domaine. Le clergé de la province ne nous a jamais refusé sa plus cordiale collaboration non plus. C'est une dette de haute reconnaissance que nous avons contractée envers nos évêques et nos prêtres. Du plus humble au plus grand, tous ont fait leur part.

L'influence de nos braves curés de campagnes qui se sont toujours prêtés avec intelligence à notre travail, qui se sont toujours fait un devoir d'annoncer nos cliniques et nos visites dans leurs paroisses, a grandement facilité notre travail. A la suite de leur prône sur l'hygiène, bien des préjugés sont disparus et bien des craintes se sont évanouies.

Mesdames et messieurs, le travail effectué dans le Québec depuis quinze ans, en vue de l'amélioration de la santé et de la salubrité publiques a été considérable. Les résultats que nous avons obtenus ont évidemment une signification que nul ne peut mettre en doute. Toutefois, si le chemin que nous avons parcouru est immense, la distance qui reste à franchir ne l'est pas moins. C'est Louis Hémon, dans son immortel "Maria Chapdelaine" qui a écrit : "Au pays du Québec, rien ne change et rien ne doit changer".

Cette lenteur mesurée de notre évolution vers le progrès s'explique par l'attachement profond de notre âme aux choses du passé. Alors que chez nos voisins, on bâtit des choses nouvelles, nous cherchons à améliorer les nôtres, vieilles de trois cents ans. C'est que cette terre québécoise renferme huit à dix générations de nos ancêtres et que ses vieux puits à margelle, ses vieilles maisons, ses vieux moulins ne sont pas simplement des souvenirs, mais constituent pour nous un témoignage : l'attachement irrésistible du Canadian-français au sol natal.

Cette mentalité qui est bien nôtre, notre concitoyen de langue anglaise doit essayer de la comprendre comme nous nous efforçons de saisir la sienne dont les racines ne sont peut-être pas enfoncées aussi profondément que les nôtres dans le sol canadien. Quant à nous, il importe que nous sachions conserver non seulement cette mentalité, mais le corps dans lequel se loge notre intelligence. La santé physique est indispensable à la santé intellectuelle et morale, ne l'oublions pas. Déjà, nous avons fait beaucoup pour conserver, préserver, sauvegarder la santé publique ici, mais la tâche n'est pas terminée. Il serait même téméraire, croyons-nous, d'affirmer que nous sommes dans une situation normale au point de vue santé.

Jetez un coup d'œil sur les rapports fédéraux et vous constaterez que l'examen des recrues, dans tout le pays, révèle qu'un grand nombre de nos jeunes gens ont été rejetés des cadres militaires, pour une raison ou pour une autre. De ce nombre, plus de 80 pour cent souffraient de maladies, d'infirmités ou de défauts que l'hygiène bien respectée eut empêchés.

Si notre mortalité générale est de dix par mille de population, il n'en reste pas moins vrai que nous perdons deux fois plus de personnes par tuberculose que les autres provinces. Notre mortalité infantile est presque le double de celle de l'Ontario.

A cause de nos familles nombreuses, il est certain qu'il nous sera bien difficile d'atteindre les taux de mortalité et de morbidité de quelques-unes des autres provinces. C'est un fait presque admis qu'à une natalité élevée correspond presque toujours une mortalité élevée. En effet, les probabilités d'un plus grand taux de morbidité et de mortalité pour une maladie infectieuse sont plus grandes dans une famille de 12 enfants que dans celle qui n'en compte qu'un seul.

Les facteurs économiques : alimentation, logement, vêtement, soins médicaux, etc., agissent au détriment des familles nombreuses de toute évidence.

Nous pouvons cependant et nous devons abaisser notre taux de mortalité infantile, celui de notre mortalité par tuberculose et celui de notre mortalité par maladies contagieuses. Pour cela, il ne faut pas compter exclusivement sur l'effort des gouvernements : chaque citoyen doit prendre ses responsabilités.

L'éducation de notre population au point de vue santé publique progressera dans la mesure où toutes les classes dirigeantes appuieront le ministère de la Santé et du Bien-Etre social en matière de médecine préventive. Que nos chefs de file supportent l'Association canadienne de Santé publique dans tout le Canada, et notre pays bénéficiera de plus en plus des bienfaits de l'hygiène et de la salubrité publique !

Les révolutions, bonnes ou mauvaises, ont toujours leurs origines profondes dans les hautes sphères de la société. Il faudrait dans toutes nos universités une école de médecine préventive bien organisée. En s'appliquant à faire de la prévention plutôt que de la guérison, le médecin de demain servira les plus beaux intérêts humanitaires. Ses intérêts économiques n'en souffriront nullement. Bien au contraire, lorsque tout le monde sera convaincu que la machine humaine, comme toute autre machine, a besoin de faire reviser son mécanisme à périodes fixes, le médecin sera appelé à traiter des patients qui ne sont pas des malades. Les succès qu'il remportera auprès de ses clients ne manqueront pas d'être assurés.

Un client satisfait paye mieux qu'un autre qui ne l'est pas. Les croquemorts auront peut-être à s'en plaindre : il leur restera toujours la source inépuisable des charlatans pour leur fournir des clients. Nos éducateurs devront avoir de fortes notions d'hygiène et de médecine préventive.

L'école est le meilleur milieu pour la semence des principes d'hygiène et de salubrité. L'enseignement de l'hygiène devrait être sur le même pied que l'enseignement de la morale ou de l'orthographe.

Si l'on trouve de belles âmes dans des corps débiles, je ne sache pas qu'il

déplairait au Créateur d'en trouver une également belle dans un organisme physique bien épanoui.

Cet enseignement de l'hygiène à l'école, nous voulons y accorder une plus grande attention, mais il nous faut la coopération des éducateurs et nous sommes assurés de l'avoir entièrement. Ce qui importe, c'est que, dès la plus tendre enfance, l'enfant prenne des habitudes de propreté, de sobriété et de bonne conduite, qui assureront à son corps le plein exercice de ses fonctions.

Une meilleure répartition des services médicaux est également essentielle à l'accomplissement d'un bon programme d'hygiène dans notre province comme dans le Canada. Il suffit de relire le rapport de l'enquête fédérale-provinciale sur les relations du Dominion et des provinces. Les conclusions de monsieur Grauer, qu'on les accepte en bloc ou non, méritent d'être étudiées.

L'enfant trouvé porteur de défauts devrait pouvoir recevoir des soins appro- à l'accomplissement d'un bon programme d'hygiène dans notre province comme qui donne la vie à un petit canadien dans nos régions éloignées devrait recevoir de notre société au moins autant d'attention qu'il en est accordée à l'épouse d'un chômeur de nos villes, dans la même circonstance. Il ne faudrait pas punir la première parce qu'elle a eu le courage d'aller gagner sa vie loin du confort des villes.

Or, présentement et en dépit des sommes formidables que le gouvernement de cette province dépense pour les soins médicaux dans les colonies, plus de douze cents municipalités, paroisses ou agglomérations rurales n'ont pas de médecin. Le même état de chose existe dans plusieurs provinces nous rapporte-t-on. C'est un état impossible à concevoir dans un pays civilisé. Les membres de la société, si société il y a, ont le droit de jouir des lumières de la science et des bienfaits de l'art d'Esculape. La raison d'être de la société, c'est de veiller au bien-être social de ses membres.

Sur trois mille médecins qui composent notre profession médicale, 2,600 sont établis dans les villes et quatre cents dans nos centres ruraux. Quelles conclusions tirer d'un tel tableau! Cette situation peut-elle durer? Tout le monde connaît les dangers économiques et sociaux d'une trop grande disproportion entre la population des villes et celle des campagnes; tout le monde se rend compte de l'importance de la misère dans l'éclosion des révoltes et des rébellions.

Au train où vont les choses, le médecin de campagne sera, avant longtemps, un souvenir du passé. Je comprends que la spécialisation à outrance et le développement des institutions d'assistance publique lui ont porté un rude coup. Il n'en demeure pas moins vrai que le médecin de campagne devra, un jour ou l'autre, être rétabli dans ses droits, si nous voulons éviter l'effondrement de notre structure économique ou l'abandon de notre vocation terrienne.

Il n'appartient pas au gouvernement seul de régler ce problème si grave. Les facultés de médecine de nos universités, la profession médicale, le clergé, les sociologues, les économistes et tous ceux qui se préoccupent du sort de la province de Québec et du Canada tout entier doivent l'étudier, l'analyser, le résoudre.

Ceux qui redoutent la médecine d'État, plus que tous les autres, ont l'obliga-

tion de chercher une solution conforme à leurs principes. Qu'ils méditent en particulier sur le sort du médecin de campagne, sur la nécessité de doter toutes nos agglomérations d'au moins un médecin pratiquant. La santé publique l'exige et le bien-être social de notre population le commande.

Mesdames et messieurs, vous ne m'en voudrez pas trop, je l'espère, de l'insistance que j'ai mise à vous peindre notre situation, à vous décrire l'évolution de l'hygiène dans la province de Québec et à vous exposer les besoins de l'heure.

Les progrès que le Canada et la province de Québec ont fait depuis un siècle, le développement de la santé publique, l'encouragement que les hygiénistes ont toujours reçu des hommes publics nous autorisent à bien augurer de l'avenir. Pour sa part, la province de Québec, grâce à la collaboration soutenue de la profession médicale, avec l'appui du clergé et des classes dirigeantes, regarde le futur, pleine de confiance et d'espoir, avec la certitude de pouvoir reculer les frontières de la vie et assurer la vitalité de plus en plus grande de sa population.

Adaptation of the Venereal Disease Control Program to National Defence*

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NEITHER total war nor germs are hindered by the boundaries of the mapmakers. Artificial lines of demarcation likewise offer no barrier to the deep friendship which exists between your country and mine. We are determined to face common problems together, whether they be related to military strategy or to health defence.

The threat of war is fostering a degree of unity among the Americas heretofore thought impossible. Throughout these two continents is spreading a realization that the fate of western civilization may depend upon the extent of co-operation between American nations.

Yet, in the English-speaking Americas, this sense of unity was born long before the crisis of world conflict made unity imperative. And I am proud to bring to you today an expression of this feeling of oneness from the Surgeon General of the United States Public Health Service. I am happy to share in Doctor Parran's faith in the common destiny of the health of Canada and the United States, a feeling shared also by the public health and medical professions of the United States.

Speaking to the "National Nutrition Conference for Defence," held last month in Washington, President Roosevelt said: "During these days of stress, the health problems of the military and civilian population are inseparable." This may appear to be a new element resulting from the circumstances of total war. With relation to venereal disease, however, it has always been true.

This fact was brought forcibly home to Americans during their participation in the first World War. The venereal diseases—syphilis and gonorrhea, in particular—were found to be the third ranking cause of lost time among military personnel. During the war period, the venereal diseases cost the United States Army nearly seven million days. It was brought to attention that the sources of syphilis and gonorrhea in the armed forces were to be found in the civilian community and thus were a responsibility, in large part, of public health authorities.

In the adaptation of a peace-time venereal disease control program to the present needs of national defence, certain facts and objectives had to be kept in mind:

First, that public opinion has been altered. The venereal disease program is a popular movement, a democratic movement, in the finest sense.

*Read at the thirteenth annual meeting of the Canadian Public Health Association, Quebec, June 9, 1941.

That was not the case in 1917. The character of public attitudes in the second war also is different, and requires a somewhat different approach than was taken before.

Second, we must keep in mind that venereal disease control is of crucial defence import, but that at the same time the pitfall of identifying war-time-limited venereal disease control with the long-term public health control of syphilis and gonorrhea must be avoided.

The large-scale Army manoeuvres of the spring of 1940 presented the first major challenge to public health in the adaptation of venereal disease control measures to modern national defence in the United States. This was met, in the main, by concentration of trained personnel in the manoeuvre areas, and by strict adherence to public health principles in diagnosis, treatment and epidemiology, particularly limitation of the opportunity for exposure.

Running abreast of the growing interest in defence and synchronous with the concentration of military and industrial personnel came those parasitical elements—prostitution and quackery. As soon as the President declared the existence of a state of limited emergency, the Public Health Service began planning a modification and intensification of the program to control syphilis and gonorrhea. Both the Secretary of War and the Secretary of the Navy wrote the Surgeon General of the Public Health Service suggesting cooperative action to build an even stronger program among civilians. Basic to such action was delineation of responsibility which up to this time had been rather indefinite between the various authorities.

After a series of conferences, a statement of policy was drawn up and unanimously adopted by the Conference of State and Territorial Health Officers in May of 1940. Subsequently, the plan was approved as a basis of national action by the Federal Security Administrator (for the Public Health Service) and by the Secretaries of War and Navy. The agreement follows:

"It is recognized that the following services should be developed by State and local health and police authorities in cooperation with the Medical Corps of the United States Army, the Bureau of Medicine and Surgery of the United States Navy, the United States Public Health Service, and interested voluntary organizations:

"1. Early diagnosis and adequate treatment by the Army and the Navy of enlisted personnel infected with the venereal diseases.

"2. Early diagnosis and treatment of the civilian population by the local health department.

"3. When authentic information can be obtained as to the probable source of venereal disease infection of military or naval personnel¹, the facts will be reported by medical officers of the Army or Navy to the State or local health authorities as may be required. If additional authentic information is available as to extramarital contacts with diseased military or naval personnel during the communicable stage, this should also be reported.

"4. All contacts of enlisted men with infected civilians to be reported

¹Familial contacts with naval patients will not be reported.

to the medical officers in charge of the Army and Navy by the local or State health authorities.

"5. Recalcitrant infected persons with communicable syphilis or gonorrhoea to be forcibly isolated during the period of communicability; in civilian populations, it is the duty of the local health authorities to obtain the assistance of the local police authorities in enforcing such isolation.

"6. Decrease as far as possible the opportunities for contacts with infected persons. The local police department is responsible for the repression of commercialized and clandestine prostitution. The local health departments, the State Health Department, the Public Health Service, the Army, and the Navy will cooperate with the local police authorities in repressing prostitution.

"7. An aggressive program of education both among enlisted personnel and the civilian population regarding the dangers of the venereal diseases, the methods for preventing these infections, and the steps which should be taken if a person suspects that he is infected.

"8. The local police and health authorities, the State Department of Health, the Public Health Service, the Army, and the Navy desire the assistance of representatives of the American Social Hygiene Association or affiliated social hygiene societies or other voluntary welfare organizations or groups in developing and stimulating public support for the above measures."

Throughout the period of emergency, the Public Health Service has made available the entire resources of its personnel and facilities to protect the health of the military forces through the establishment of civilian control measures, and to safeguard and maintain at the peak of efficiency the industrial workers on whom such a tremendous responsibility rests today. In October, 1940, the Surgeon General assigned veteran public health officers to liaison work with each of the nine Army Corps Areas. Every effort has been made to strengthen State and local health departments in special military and industrial defence areas.

The Surgeon General called an emergency meeting of the Conference of State and Territorial Health Officers in September, 1940. Speaking of the major health problems of the emergency, and particularly their relation to the Selective Service program, he said: "Among the 16,500,000 registrants, there will be found countless physical defects and many cases of communicable diseases. For example, a large proportion of early syphilis is among this age group. Here will be 300,000 foci of infection going into the registration booths. Have we the energy and the vision to offer a blood test to these men? It is a major opportunity to mobilize all of our public health and medical effort to find and stamp out perhaps the larger portion of this menace to national fitness."

This special defence health conference preceded by only a few weeks America's first peace-time registration for military service. Some 17,000,000 men, between 21 and 36 years, were involved. An unprecedented opportunity for the public health control of venereal disease was offered, and many State health officers accepted the proposal to provide blood tests for all registrants. While the time and equipment for such a large undertaking severely limited

its prosecution, a considerable number of States were able to carry out such a procedure. Others instituted Selective Service educational activities designed to reach this great mass of men with facts about syphilis and gonorrhea which would result in the discovery and treatment of infectious cases.

Significantly, the Selective Service authorities found it advisable to include blood tests for syphilis and clinical examinations for gonorrhea and syphilis as a part of all routine physical examinations. The Public Health Service and State departments of health have cooperated by providing laboratory and other services.

A preliminary tabulation of reports of laboratory examinations submitted by all but four States and the Territories for the period from the passage of the Selective Service Act to April 15, 1941, covers a total of 1,070,000 men. In this total group, there were 48,500 men with serologic or clinical evidence of syphilis. For white selectees and volunteers for whom reports were submitted, there was a rate of 18.5 per thousand; for Negroes, this rate was 241.2 per thousand.

The industrial aspects of venereal disease control are of vital significance. In the true sense of the word, venereal disease is a saboteur in the factory. Recent data based on blood test surveys in large industrial centres reveal that from 20 to 40 in every thousand workers are infected with syphilis. The danger to production of goods essential to the survival of the democratic way of life suggested by these figures can only be negated by a comprehensive plan of control carried out cooperatively by industry, labour, and public health. Such programs are now being carried out in many of the 75 vital defence industries. In process of formation is a national committee representing these three groups, whose task it will be to develop a plan of action for the United States.

We are all aware of the relationship of unrestricted prostitution to the spread of venereal disease. Because of its deep social and economic connotations, prostitution seems to be a matter for the attention of law enforcement authorities more than of health workers.

In recognition of this factor, there has been set up in the office of the Administrator of the Federal Security Agency a division to aid the States in the repression of prostitution. Emphasis is placed on the protection, employment, and when necessary, rehabilitation of women.

The Conference of State and Territorial Health Officers, meeting with the Surgeon General last month, adopted several pronouncements of particular significance to the control of venereal disease in this crisis. Recommendation was made that Federal funds be withheld from any community which did not take active steps to enforce its laws dealing with the repression of prostitution.

Under the Selective Service and Training Act of 1940 men found to be infected with syphilis or gonorrhea are rejected. With the recent advances in gonorrhea therapy through the use of the sulfonamides, it now appears unnecessary to eliminate men with uncomplicated gonorrhea. The State and Territorial Health Officers and the Administrator of the Federal Security Agency have recommended that the objectives of the Selective Service Act

and the health and welfare both of persons called for service thereunder who are found infected with uncomplicated gonorrhreal urethritis and of the civilian public, could best be served if such selectees were promptly inducted into service and treated.

In closing, may I recall the words of Doctor M. R. Bow's presidential address to this association in 1937. What he said then bears repeating, both for you in Canada and for us in the United States.

"When we speak of the undeveloped resources of Canada, we think of our mines, forests, lands, and the other great resources with which our country is so richly endowed, but the health of our people, on which the whole future of our country depends, is seldom even mentioned as one of these resources. We can ill afford, from any point of view, to delay longer the general application of those methods which science has placed in our hands and which, it has been demonstrated over and over again, when properly applied return dividends in physical and mental fitness out of all proportion to the sums invested for this purpose.

"Humanity is on the march. The movement for the equalization of opportunities for health is but a part of the onward march of man to individual, national, and ultimately international security."

You in Canada are facing the challenge of international security in a very real fashion. We in America are rapidly realizing our obligation to do likewise. In the stress of war, health may seem to be a very small part of our nation's needs. It is an essential which, like liberty, we are not apt fully to appreciate until it is lost. My official position is one which does not deal with military might and so, despite personal feelings, I am not authorized to bind our countries in an alliance for armed victory. But I am able to pledge today and for the future, security against the venereal diseases, and a permanent alliance for international public health.

Improving Nutrition via the Family Budget*

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IT has been said that the more fortunate can afford to dispose of their mistakes in clothing purchase, but most of us have to wear them and endure the shock to the pride. However, can the effect of unwise food choice be dismissed as readily by either rich or poor? Consider the actual physical harm that may result. Moreover, such errors are particularly insidious because the ill effects of food deficiencies are frequently slow in making their appearance.

Food budgeting in varying forms has been an integral part of the organized nutrition program carried on since 1929 by the Montreal branch of the Victorian Order of Nurses. While the major responsibility for this instruction is assumed by the nurse, the nutritionist, a worker scientifically trained in home-making, guides the planning. The nutritionist also assumes the responsibility of preparing illustrative material for the patient and gathering for the use of the busy nurse the most pertinent facts relating to the newer developments in the field of nutrition. The ensuing discussion is based upon experience secured in this program in Montreal.

Wise food choice is particularly vital as incomes fall, due to the fact that the margin of safety from border-line or actual malnutrition is sharply reduced in proportion to this decline in income. In consequence, during the depression years intensive work was done with the family receiving relief or a subsistence wage. Studies in Canada and the United States (1, 2, 3, 4) have shown that, below certain levels of income, even expert planning cannot provide food adequate for health protection. However, realizing that half a loaf is better than none, workers have endeavoured to help families to reach as nearly as possible the desirable standard in food choice. That this persistence is bearing fruit is shown by such instances as that of the mother of five, to whom the nurse had given budgeting help over an intermittent period of four years. Now that higher wages permit a greater scope, the mother continues to apply these principles more intensively in her own home and, because of her experience, has been asked to lead a budgeting discussion group at the neighbourhood community centre.

At present the absorption of unemployed heads of families into industry and defence is gradually increasing spending power, but the purchase of a health-protective diet still continues to be difficult for many families because the budget must cover replacement of household equipment and clothing, so sadly depleted during years on relief or very low wage. Again, because the money allowance for the family of a man in the armed forces is made for the wife and two children only, it is often essential that considerable guidance in wise buying be given

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when there are three or more children in the family. The wartime situation also is bringing an increasing number of requests for advice from salaried people, who must make rather drastic adaptations because of rising taxes and a desire to increase war savings. Thus during this time of national emergency food budgeting continues to play an important part in maintaining the fitness of the population.

Ideally, budgeting should include detailed consideration of all demands made upon the income, that is, for shelter, clothing, development and protection, as well as food, in order that they may be kept in the proper ratio. Thus, too large a proportion spent on rent may mean that the family must reduce food expenditure below the safety level or else run into debt.

Although the nature of a public health nursing service such as the Victorian Order prevents intensive budgeting work on items other than food, the food budgeting form used has space for at least an outline of other expenditures.

As in all forms of instruction the desirable starting point in budgeting is a genuine desire on the part of the client or patient to keep this record because she has a particular object in view. Thus Mrs. A, the mother of three noisy boys, sits down at night, when at last the house is quiet, and wrestles with the weekend shopping list, because after five years on relief she is almost pitifully anxious to have a little nest egg in the bank when her army-cook husband comes home again.

For some families, it has proved more satisfactory to avoid the more formidable term of budgeting when introducing planned food choice. Instead, the nurse may merely suggest that the bills be kept or a list be made on the form issued by the Victorian Order, so that on the next visit she and the housewife can discuss some of the foods used for that particular week from the standpoint of economy and health protective qualities. In certain instances, where visits must be limited, it has been found that time may be saved if the nurse leaves a self-addressed envelope with the food list and suggests that it be mailed as soon as completed. By this means, the nurse is able to examine the list before entering the home and has her plan of instruction in readiness.

Food List I was submitted in March 1941 for a family of eight, the six children ranging in age from two to thirteen years. Although 35 per cent of the weekly pay was spent on food, this family could not afford the minimum health standard recommended by the Canadian Medical Association booklet, "Food for Health in Peace or War", which at March 1941 estimates cost approximately \$15.00 for this age group. However List II shows improvements that bring the diet closer to the desired level of food intake.

It should be noted that these suggestions represent the teaching carried on over a number of visits. Experience has shown the wisdom of "making haste slowly" when suggesting changes in food habits, otherwise there is danger of the patient feeling overwhelmed and as a consequence, failing to make the response that might reasonably be expected.

A comparison of the two food lists will show that to procure the greatest

health protection for the least money the nurse has based her analysis on the following general principles:

1. Until the desirable daily quantity of milk and cheese is being used, the money spent for meat should be the smaller amount, roughly one quarter for milk and cheese, one sixth for meat. (Compare List I and II.)

FOOD LIST I
(Patient's Purchases)

12 qts. milk @ 12c.....	\$1.44
3 cans evaporated milk @ 3/25c	.25
½ lb. pkg. cheese.....	.15
	— \$ 1.84
15 loaves white bread @ 10c.....	1.50
1 lb. pkg. Ry-Krisp.....	.45
3 pkgs. cornflakes (8 oz. size) @ 25c.....	.25
1 pkg. rolled oats.....	.19
	— 2.39
15 lbs. potatoes @ 10/15c.....	.23
2 lbs. cabbage @ 2/9c.....	.09
1 lb. onions.....	.05
2 lbs. carrots @ 4c.....	.08
2 tins peas @ 10c.....	.20
1 lb. tomatoes.....	.25
1 head lettuce.....	.07
2 tins pork and beans @ 9c.....	.18
2 doz. oranges @ 2/45c.....	.45
2 lbs. cooking apples @ 2/15c.....	.15
1 lb. apricots.....	.35
2 lbs. bananas @ 8c.....	.16
	— 2.26
1 lb. bacon.....	.29
1 can red salmon.....	.26
2 lbs. veal chops.....	.50
4 lbs. ham @ 25c.....	1.00
1 doz. eggs.....	.25
1½ lb. hamburger.....	.30
	— 2.60
4 lbs. butter @ 35c.....	1.40
1 lb. lard.....	.08
5 lbs. white sugar.....	.33
2 lb. jar jam.....	.26
½ lb. tea.....	.30
	— 2.37
	— \$11.46

FOOD LIST II
(Changes suggested by nurse)

17 qts. milk @ 12c.....	\$2.04
9 tins evaporated milk @ 3/25c	.75
1 lb. bulk cheese.....	.26
	— \$ 3.05
10 loaves whole wheat bread.....	.90
5 loaves white bread.....	.60
3 lbs. rye flour.....	.21
2 lbs. rolled oats.....	.09
2 lbs. cornmeal .....	.20
	— 2.00
25 lbs. potatoes @ 10/15c.....	.38
3 lbs. cabbage @ 5c.....	.15
6 lbs. carrots @ 3/10c.....	.20
3 lbs. turnips.....	.10
2 lbs. parsnips @ 5c.....	.10
2 lbs. onions @ 5c.....	.10
1 lb. dried peas.....	.08
2 lbs. dried navy beans.....	.18
4 tins (28 oz. each) tomatoes.....	.42
1 doz. oranges.....	.23
2 lbs. prunes.....	.25
1 lb. dried apples.....	.15
1 lb. raisins.....	.13
	— 2.47
2 lbs. brisket.....	.24
1 lb. tin pilchards.....	.12
2 lbs. beef liver.....	.38
2 doz. eggs.....	.50
3 lbs. chuck roast.....	.57
	— 1.81
3 lbs. butter.....	.105
1 lb. lard.....	.08
½ lb. bacon ends.....	.08
1 lb. peanut butter.....	.15
1 pt. molasses.....	.13
2 lbs. dark brown sugar.....	.13
2 lbs. white sugar.....	.13
½ lb. tea.....	.30
	— 2.05
	— \$11.38

2. Surveys show that there is more likely to be a shortage of calcium, iron, and vitamin B. Therefore, in a normal diet, where choice of two similar foods is offered, select the one with higher mineral or vitamin content; i.e. use whole-grain or vitamin-rich bread and cereals *at least* half the time and brown sugar or molasses more frequently in place of white sugar.

3. Home-cooked baked beans, cereals, soup, cookies, etc., usually cost only one quarter to two thirds as much as the "store" product, especially for the large family and when the fuel for cooking is also used for heating purposes:

8 oz. package prepared corn cereal costs 8 1/3c or 17c lb. Yield—8 servings.

1 lb. cornmeal costs 10c. Yield—16 to 18 servings of porridge.

4. Foods purchased in packages are more expensive than those in bulk.

5. Out-of-season foods are an expensive luxury, i.e. fresh tomatoes in the period January to August.

Complicating the situation in this particular home is the fact that the six-year-old boy is allergic to all wheat products, with the result that the busy mother must plan substitutes to satisfy his appetite. In addition, after the birth of the two-year-old, a diagnosis of nutritional anaemia was made for the mother. At that time she used two bottles of the iron tonic advised by the hospital clinic but then discontinued taking it because of the expense. When the recent contact was made in the sixth month of pregnancy the mother appeared very pale and listless. As is the practice in all cases, this family has been given guidance in selecting foods to help meet the needs for energy, protein, minerals and vitamins; an especial effort has been made to emphasize the use of the more economical iron-rich foods desirable for all antenatal patients, but particularly for one who is prone to anaemia. To further stress the foods suggested, which included liver, prunes, whole wheat bread, and dried vegetables, the nurse left with the mother a simple list in mimeographed form, which, she suggested, might be tacked up in the kitchen as a daily reminder. So also on a subsequent visit the mother was given recipes for home-cooked rye and cornmeal products, as Boston Brown Bread and cookies, to be used as an alternative for the expensive packaged rye wafers purchased for the child allergic to wheat.

Finally because Food List I shows the common dangerously low intake of calcium and vitamin B, the nurse discussed the importance of these factors and pointed out that the increased quantities of milk and cheese were advised because without them the calcium needs of the body would suffer. She also suggested that variety in meals, as well as milk in a cheaper form, could be obtained more easily by using cheese as a meat substitute once or twice a week.

The easiest and most practical way to increase vitamin B, especially if there are few vegetables in the diet, is to use more frequently whole grains as rolled wheat, rolled oats, rye flour and others in bread, soups, cereals, "quickbreads" and puddings. Liver and heart, dried vegetables, as beans and peas, also nuts, as peanut butter, are rich in vitamin B. These suggestions were thus incorporated with the revised food list.

The five-month contact with this family ended on a most encouraging note. Milk intake was found to be increased by two quarts more per week than the quantity suggested by the nurse. This has been made possible largely through a gradual change in the type of meats purchased. The mother not only bought the rye flour as advised and used recipes left by the nurse but also searched successfully through several old cookbooks of her own for additional rye flour recipes. As for the iron rich food, liver or heart or kidney are now being used at least once a week; molasses has been increased from a quart per month to a pint per week. The vitamin B intake has been materially raised in spite of the fact that the family still is using whole grain breads less than half the time; however, when it is considered that food habits are not changed over night, very satisfactory progress has been shown by this family.

Before concluding, reference should be made to the importance of some form of illustrative material as a means of further emphasizing nutrition instruction given in the homes. Such lists or charts have proved most helpful when the information is presented in a form simple enough to be read quickly by the busy housewife. For the Montreal branch of the Victorian Order such teaching aids have been prepared by the nutritionist, or, as in the case of a cookbook used by various agencies, the work has been the cooperative effort of four nutritionists, serving as many organizations within the city. Where there is no nutritionist to prepare illustrative material, it may be feasible to obtain help from workers in other fields of home economics, such as hospital dietitians, household science teachers, directors of women's institutes and former workers who have since married. Various federal government bulletins on milk, cheese, fish and other food topics are also a valuable supplement to instruction and are obtainable in both English and French. The previously mentioned Canadian Medical Association booklet, "Food for Health in Peace or War", may also be procured in English and French and is very helpful for families not on extremely low wages or relief.

The contact with families, made possible through a public health nursing organization, offers a unique opportunity for spreading knowledge of sound food choice, a vital factor in the well-being of the population, either in peace or war time.

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Chronic Fatigue Symptoms Among Industrial Workers*

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AS medical service has become increasingly available to all classes of our population, we are all learning to take an interest in more and more of the minor conditions which formerly were not considered to be of sufficient importance to merit the attention of the medical profession at all. These conditions, functional rather than organic in character, do not usually carry with them much risk to life itself; they do, however, contribute much to the sum of human misery. The institution of proper treatment will often remove a condition of predisposition to more serious illness, and we feel that it is important to bear in mind the possibility of having genuine symptoms from functional causes in order that we may steer our patients away from misguided attempts to cure their amazing symptoms by radical surgical measures.

For the past fourteen years, it has been my lot to look after the medical welfare of an industrial group which is made up, in normal times, of about twelve hundred young women and six hundred men. It is on the experience with this group that most of the observations contained in this paper are made.

Included in the work has been the administration of a non-contributory sick benefit system. Within a year or two of the establishment of this benefit system, we began to have a series of cases which were strangely alike in nearly every feature. The cases were almost all among young girls; eighty per cent of them came to us between May 1 and September 30. All brought letters from their family doctor asking for a leave of from one to two months because of the presence of conditions, variously and indefinitely described as "weakness", "debility", "general debility", "nervous debility", "depression", "general depression", "nervous depression", "nervous breakdown", "asthenia", "neurocirculatory asthenia", "anaemia", "fatigue", "run-down condition". When we had been forced into night work or other complications of a high rate of production, the number of these cases increased, sometimes up to four per cent of the personnel. We also noted that there were relatively more of them in years of general prosperity than in years of depression.

It became our custom to take a careful history of these employees and to ask them to describe accurately what their symptoms were. This was sometimes a little difficult, and they would maintain stoutly that they felt "asthenia" or "general debility". Finally, however, one could elicit the definite symptoms from which they suffered. We then did a careful physical examination and obtained

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an X-ray or the chest if at all possible. An analysis of the symptoms and signs elicited forms the principal part of this paper, and will be dealt with at some length.

Now, in searching for a cause for these absences, one thinks of three possibilities :

1. The employee in question might be indulging in straight malingering, describing non-existent symptoms simply for the purpose of getting a long summer vacation with a part of her pay coming as benefits. Some colour is lent to that theory by the marked seasonal incidence at the time when a vacation is most pleasant in this country, and by the observation that our girls used to seek these leaves most often in the years when their fathers and brothers were most profitably employed. In rebuttal of these arguments, however, one could maintain that there are certain symptoms which do not compel one to stop work, and whose relief can await a season suitable alike from the standpoint of weather and finances.

2. The patient may be the subject of serious organic disease, such as tuberculosis. A careful physical examination and the passage of several years without the appearance of the physical signs of destructive lesions rules this possibility out in the great majority of cases. One recalls only one case of a young girl who was thought to fall into the group herein described in June of one year, who died of a tuberculous broncho-pneumonia after three weeks' illness the following March. If we had been able to have an X-ray of that girl's chest when she first came to us, her life might have been saved.

3. The third possibility is that our candidate for lengthy summer leave really does have symptoms which have a functional rather than an organic base. This, we feel, is the true explanation, and the basis for our belief is the remarkable constancy of the specific symptoms of which these people complain on careful questioning, and of the physical signs which they show on examination.

Practically all of these patients complain of all, or of more than half of the following symptoms :

1. Fatigue. Their usual statement is : "I awake in the morning just as tired as I go to bed at night."

2. Pain in the back, usually on the right side, between the scapula and the vertebrae. This pain appears to be closely associated with the trapezius and rhomboid muscles. Strange to say, it was the symptom most constantly met with, occurring in nearly one hundred per cent of the cases.

3. Loss of appetite.

4. Inability to sleep until the early hours of the morning.

5. Among the women, a tendency to cry a great deal over nothing.

6. Among the men, irritability.

(Probably these last two symptoms were simply sexual variations of one and the same complaint.)

The physical signs which were present most commonly were :

1. Loss of weight : the value of having accurate weight records of employees over a period of years is illustrated in this connection.
2. Increase of pulse rate, usually to a point above one hundred beats per minute.
3. Low blood pressure.
4. Tremor of the outstretched hands.
5. Pallor.

Since all the cases cleared up with a period of rest away from work, one is justified in assuming that the symptoms were due to fatigue.

As in all these obscure functional conditions, one often finds it difficult to be certain that the patient is not the subject of a definite organic illness. It is most difficult when one is faced, year after year, with thirty or forty of these cases, all with the same happy outcome, to school oneself to consider each case on its merits, and to search diligently for possible organic illness.

Those illnesses most easily confused with what I like to call the "fatigue syndrome" are three in number: (1) pulmonary tuberculosis, (2) hypochromic anaemia, (3) Graves' disease.

In almost every case, the rapid pulse rate, loss of weight, and pallor suggest chronic lung disease. The absence of temperature, the reassuring history of emotional outbursts and the negative physical and X-ray examinations, however, usually set one right.

The pallor frequently suggests that one is dealing with a case of hypochromic anaemia, but there is usually not the confirmatory evidence of smooth tongue, spoon nails or splenomegaly. The haemoglobin in most of these cases is about sixty-five to seventy per cent by the Sahli method.

It is, however, in the differential diagnosis from hyperthyroidism that the greatest difficulty arises. Ask any final-year medical student what he thinks of a patient who comes to him with fatigue, irritability, demonstrable loss of weight, a rapid pulse and tremor of the outstretched hands. He will tell you that the person undoubtedly has Graves' disease. And yet, most of these people who come to us with the fatigue syndrome have all these symptoms and signs, and apparently have no disease of the thyroid gland. The absence of eye signs, of enlargement of the thyroid and of hypertension are all of some assistance. Several of our cases had, in addition to the symptoms and signs recounted above, thyroid enlargement of the adolescent type. Basal rates were done in these cases and were usually minus one to plus five.

Treatment: It is to the great credit of the practitioners who supplied the certificates to these employees that in no case did they propose to undertake any radical treatment. The request was, in a majority of the cases, for a month or two away from work, to be spent in the country or at home if a journey was not practicable financially. In practically all the cases, this measure relieved the symptoms. Perhaps we should give some credit, too, to the tonics and hypodermics which were frequently prescribed.

In this connection, it is interesting to note that there was a tendency to

recurrence: in other words, a girl who has had fatigue symptoms once is more likely to complain in succeeding years than one who has been able to work, year in and year out, without interruption.

To those of us interested in personnel problems, it has long been apparent that individual employees vary greatly in their capacity to do a given job for a given time in comfort. If we were clever enough at figures, we might even be able to assign to each individual a "rated capacity", to borrow the railroaders' term. It is hard to do so, however, because so many factors, difficult to assess, enter into the picture. Among these are the use of the employees' leisure time and conditions at home, where the illness of one member of the family may well result in a loss of sleep by all the others.

In spite of our inability to measure it, the fact remains that each person has his or her own individual capacity for work. If he works at eighty per cent of that capacity, he is comfortable. When he reaches one hundred and five per cent, he usually gets symptoms.

Speaking now from the standpoint both of an industrial hygienist and of a private practitioner of internal medicine, one has gathered the impression that since last autumn quite a number of people, in every walk of life, have been trying to work at a rate somewhat above one hundred per cent of their capacity. The fundamental cause is, of course, the war. Nearly every industry is working to capacity and has, in addition, lost many of its key men to the forces. Many a senior or junior executive is giving two or three evenings a week to his industry in an attempt to keep things moving. In addition to this, one finds the seniors giving a night or two a week to the Civilian Protection Corps, the juniors to an officers' training corps, and the workers to drill with the non-permanent active militia. When one adds all these things together, there is frequently not enough time left for a proper amount of sleep and for the servicing which an individual, as well as a destroyer, needs!

Papain Digest Media and Standardization of Media in General*

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THE preparation of media on a large scale presents the technical problem of producing a medium which will be efficient, present as few variations from batch to batch as possible, be simple and quick in preparation, and inexpensive. Papain-digested meat medium was found to meet as nearly as possible these requirements (Asheshov et al., 1933).

Modifications have been introduced since the first publication of the method, the modified technique has stood the test of time, and this medium has been used as a basic routine medium for the cultivation of the majority of pathogenic microorganisms.

Papain as a digestive agent for the preparation of media was first suggested by Martin (1927). It is used in the form of dried juice of *Carica papaya*. I have tried some purified preparations but find them less satisfactory and more expensive. The dried juice, as obtained from Ceylon,† is very active and has good keeping properties; when kept in air-tight containers, without other special precautions, it retained full activity during two hot and rainy seasons in India.

PREPARATION OF CONCENTRATED BROTH

One kilogram of minced beef or veal is suspended in 4 litres of distilled water. This proportion was found to be the most convenient. A lesser amount of water hinders complete digestion, resulting in a diminution of total nutrient material in the final product. Further dilution, though slightly increasing the total organic matter, makes handling of the concentrated broth less convenient. Ten to fifteen grm. of papain are ground into a paste with one or two cc. of glycerine, then suspended in 20-50 cc. of water and added to the meat suspension.

Papain has the great advantage of being able to digest in both acid and alkaline substrates. For our purposes I found it best to digest at the neutral point; therefore the reaction of the meat suspension, after addition of papain, is brought to a pH of approximately 7.0 with ammonia, and maintained at this point during the whole process of digestion. Occasional control only is necessary, as experience has shown that the shift to the acid side occurs only during the first hour. Papain is relatively heat-stable and acts most energetically at 60°-70°C. Its activity then diminishes, and stops at 80°C. For our purposes I found that a temperature of 60°-65°C. was the most satisfactory. The

*Presented at the ninth annual Christmas meeting of the Laboratory Section of the Canadian Public Health Association, held in Toronto, December 16-17, 1940.

†Obtainable from Eimer and Amend in powder form.

digestion proceeds very rapidly. Within one hour, nine-tenths of the meat is brought into solution. Digestion should be continued for another two hours, however, as until then a portion of the dissolved products is still coagulable on boiling.

It is interesting to note that after one and a half hours the digest already gives a positive tryptophane reaction which, however, does not increase in intensity even after six hours of digestion. No quantitative estimation of tryptophane has been made.

After three hours the digest is filtered through "agar" paper and the reaction adjusted to pH 8.0 with ammonia and sterilized in the autoclave at 115°C. for twenty minutes. This separates phosphates and any coagulable substances, thus rendering subsequent filtration easier. The completeness of digestion is shown by the fact that the amount of undigested material left on the filter does not exceed one twenty-fifth of the wet weight of the meat used, and often is considerably less.

After cooling, the digest is again filtered through "agar" paper and the reaction readjusted to pH 7.0 with hydrochloric acid; the filtrate is distributed into flasks in convenient quantities (500 cc.), autoclaved, and kept as concentrated broth.

The dilution of this concentrated broth is determined by the amount of oxidizable matter present, insuring considerably more constant composition of different batches of broth than does any other current method. Owing to great variations in the quality of meat, determination of the degree of dilution by the amount of meat used is obviously inadequate. Determination of the amount of amino acids present, with subsequent adjustments to a standard amount by dilution, is also not accurate, as in the majority of digests amino acids do not constitute the only or even the main nutrient material present.

The Kjeldahl method of total nitrogen determination is too complicated for routine use. For this reason, determination of the total oxidizable organic matter was adopted, the principle of the method being based upon that used in water examination.

DETERMINATION OF OXIDIZABLE MATTER

The reagents necessary are: (1) standard oxalic acid solution, containing 7.88 grm. per litre, (2) standard potassium permanganate solution, containing 4 grm. per litre, and (3) 20 per cent sulphuric acid solution.

On a chemical balance weigh out accurately 7.88 grm. (± 0.001 accuracy) of analytical oxalic acid and dissolve it in 1000 cc. of distilled water, using a volumetric flask. In another flask dissolve approximately 4 grm. of potassium permanganate in about 900 cc. of distilled water. Into a 500-cc. flask put about 200 cc. of distilled water. From a burette measure into this flask 10 cc. of permanganate solution and add 10 cc. of the sulphuric acid solution. Bring this to boiling point and boil for exactly (by stop watch) five minutes. From another burette add a known excess, say 12 cc., of the oxalic acid solution. Shake the

flask until the mixture becomes colourless. Prepare a dilution of 1:10 of potassium permanganate solution and titrate the mixture in the flask, using a burette, until the first trace of permanent pink colour appears. This amount of permanganate solution divided by ten, plus the original 10 cc. of permanganate solution, is the amount of the prepared potassium permanganate solution which is equivalent to the 12 cc. of the standard oxalic acid solution, and indicates the dilution required to standardize the permanganate solution. For example, if 11.4 cc. of the permanganate solution were required for 12 cc. of the oxalic acid solution, then every 11.4 cc. of permanganate solution must be brought up to 12 cc. for use in the test as standard potassium permanganate solution. Both standard solutions can be prepared in bulk and kept in a dark, cool place for months.

DETERMINATION OF OXIDIZABLE MATTER IN BROTH

The following equipment is required: one 500-cc. Erlenmeyer flask, three burettes, one 50-cc. volumetric flask.

Prepare accurately a 1:10 dilution of the broth in distilled water. Add 1 cc. of it to about 200 cc. of distilled water in a 500-cc. flask. Add 10 cc. of sulphuric acid solution and from a burette run exactly 10 cc. of a standard permanganate solution. Boil for exactly five minutes. While still hot, add cautiously from another burette 10 cc. of oxalic acid solution, which, on shaking, will completely decolourize the mixture in the flask.

For the final titration prepare an exact 1:10 dilution of the standard permanganate solution in a 50-cc. volumetric flask and add it cautiously from a burette to the decolourized mixture until the first traces of permanent pink are noticed. The amount of this permanganate solution required indicates the amount of potassium permanganate spent on oxidation of the organic matter in 0.1 cc. of the concentrated broth examined. As 10 cc. of diluted permanganate solution contains one milligram of oxygen, it follows that each 10 cc. of it spent in titration of the sample indicates that every 100 cc. of the concentrated broth contains such an amount of organic matter as to require 1 grm. of oxygen for oxidation. Colloquially, we say that each 10 cc. of dilute standard potassium permanganate solution indicates "one per cent of oxidizable matter" in the concentrated broth.

This titration indicates the amount of the total organic matter, including amino-acids, peptones, proteoses, etc., present in the medium, giving a much more complete estimation of its nutrient properties than the amount of amino acids alone. It varies considerably with the quality of the meat used—from 1.2 per cent to 2.5 per cent.

DILUTION OF CONCENTRATED BROTH

Practice shows that for ordinary nutrient broth and agar the dilution of concentrated broth down to 0.5 per cent—0.75 per cent and 0.75 per cent—1.0 per cent respectively of "oxidizable matter content" without the addition of any

other nutrient substance such as peptone, gives a satisfactory medium. This, of course, can be varied to suit different purposes. The addition of liver to meat, about one-quarter of it by weight, improves the growth of many organisms.

The advantages of the method described can be summarized as follows:

1. Rapidity of preparation. It requires only three hours for complete digestion at 65°C.

2. The digestion is carried at a temperature which prevents the development of bacteria during the process.

3. The determination of total organic matter insures more constant composition of media.

4. It is economical. With an average oxidizable matter of 1.75 per cent in the concentrated broth, and diluting it to 0.75 per cent for use, we obtain from 1 kg. of meat about 10 litres of broth. No further addition of any nutrient substances is necessary for ordinary purposes.

5. Concentrated broth takes very little room and it is easy to carry a stock of it for large amounts of diluted media for immediate use.

6. The method gives a possibility of variation of the composition of media to suit different purposes. There are three factors affecting the result of digestion which can be varied to alter the final composition: (a) reaction at which digestion is carried; broth obtained by digestion in acid reaction differs in composition from that obtained in alkaline; (b) temperature affects not only the rate of digestion but alters the composition qualitatively; (c) time of digestion affects it in the same way. By altering these factors, considerable variations can be obtained in the final composition of the media, thus making it more suitable for different microorganisms. For these reasons, this method seems to me deserving of detailed study by biochemists in collaboration with bacteriologists.

SUMMARY

A rapid, three hours' digestion of meat at 65°C. by papain is described.

A method of estimation of total oxidizable matter is suggested for standardization of nutrient properties of media in general.

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The Necessity of Provincial Plumbing Codes*

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THE necessity of plumbing regulations based on scientific principles is well recognized. Such regulations are designed for the protection and comfort of the public. Sanitarians therefore are concerned in all matters relating to plumbing and in the qualifications of plumbers.

Owing to the requirements of modern construction, a plumber should have, besides his trade experience, a knowledge of the principles of sanitary science, to assure the safe operation of plumbing fixtures. On the other hand, he is no longer required, as in former days, to manufacture his fixtures, piping, etc., as prefabricated materials are now available to him. In addition to his apprenticeship, he has the advantage of preparing himself for his trade by attending the evening theoretical and practical classes organized by provincial technical schools. These classes are available to any one who intends to become a sanitary inspector, and are indispensable to those already in the employ of health departments, if they do not possess the necessary preparation. Candidates for a certificate of competency awarded by the Canadian Public Health Association would also find these classes helpful¹.

A plumber with adequate preparation becomes of great assistance to sanitary authorities. He is the first to be called by house occupants whenever trouble is in sight, or whenever it can only be traced to hidden defects which are still of greater consequence.

If properly executed, plumbing work contributes greatly to house sanitation and prevents certain health hazards which will be referred to in this paper. It is also of interest to mention the economic aspect of plumbing, the cost of installation of which amounts from 5 to 10 per cent of the total cost of new buildings; and that plumbers in the Province of Quebec are subject to a Collective Agreement Act².

As a means of protection to the public, a plumber must be a holder of either a provincial or of a municipal licence and must, in communities where a service has been provided to that effect, subject his work to inspection. Unfortunately, this inspection is limited to the larger centres. Other municipalities could be protected against faulty installations, which are quite numerous, should they make provision for such inspection³.

*Read at the thirtieth annual meeting of the Canadian Public Health Association held in Quebec, P.Q., June 9-11, 1941.

¹Certificate in Sanitary Inspection (Canada), awarded since 1935 after examination.

²Assented to June 22, 1940. "Compulsory working conditions, both to prevent unfair competing with the signatories and to establish a fair wage and to satisfy justice."

³According to a recent tabulation issued by the Canadian Institute on Sewage and Sanitation, there are, outside the Montreal district, very few municipalities taking advantage of this inspection in the Province of Quebec. The same situation exists in the other provinces, save in the Province of Ontario, where there are about fifty municipalities taking advantage of such an inspection.

Under the Quebec Pipe Mechanics' Act⁴, no person can do business as a contractor or work as a journeyman or apprentice in a municipality of 10,000 or more of population, and in public buildings or industrial establishments in any municipality, unless a licence to that effect has been granted to him. This law, which has been a first step towards safe and efficient plumbing, etc., covers the following systems of piping: (a) heating systems used for producing motive power or heat; (b) refrigerating systems; (c) mechanical sprayers, and (d) plumbing systems.

The present discussion will be limited to plumbing.

Plumbers in municipalities such as Montreal who were required by regulation to pass an examination before the 20th of April, 1934, are not subject to the provincial law, whenever they execute work in their own municipality. However, such municipal licences do not apply to heating, refrigerating systems, and mechanical sprayers, even when installed in their own territory.

The Pipe Mechanics' Act does not specify what materials should be used and how they should be installed, nor does it provide or require inspection of the work executed by plumbers. Such provision could only be included in plumbing regulations. Pending the enactment of a provincial code which would contain minimum requirements, the municipalities contemplating the adoption of their own code may take advantage of the clauses of the Standard Plumbing By-law, and of Part 5 of the National Building Code on the "Requirements bearing on Health and Sanitation", prepared by the committees organized under the joint sponsorship of the National Research Council and the Department of Finance of Canada (1), and of the Montreal Plumbing By-law No. 1341⁵.

In the meantime, the regulations contained in the Provincial Health By-laws relating to dwellings in general (art. 14 to 20) must be complied with in the Province of Quebec, even when there is no inspection service nor qualified plumbers⁶. These regulations are applicable to all communities of the province.

A plumbing code for a large city such as Montreal must be more complete as it is called upon to regulate all kinds of structures from one-storey buildings to skyscrapers. The latter code is based on the laws of hydraulics or the science of conveyance of liquids through pipes, etc., and on the laws of pneumatics or the science of properties of air, including its circulation in pipes or in vents especially provided for the plumbing system. With the research work of the Bureau of Standards, Washington, D.C. (2) which has made possible the preparation of the codes already referred to, we now may substitute for arbitrary data or rules, precise data which can be made use of with appropriate factors of safety, and with due consideration to climatic conditions. With such regulations, proper sizes of pipes can be properly established, in relation to their flow and layout.

⁴Plumbing licences issued since 1934 by a board of examiners appointed by the Lieutenant-Governor in Council, under the recommendation of the Minister of Labor.

⁵ Adopted May 3, 1935, amending By-laws Nos. 215, 268, 297, 318, 571, 720, 1026 and 1226. (There are 177 articles and 18 chapters.)

⁶ Approved by the Lieutenant-Governor in Council, February 12, 1924.

To sum up, a provincial or a municipal plumbing code must be enforced for the following reasons:

1. Efficient control over plumbers and the work they execute must be established;
2. House plumbing is closely related to house sanitation;
3. Plumbing in buildings must be as perfect as possible, to compensate to a certain point, in certain cities, for the increasing insufficient capacity of public sewers, to ventilate the sewerage system which becomes more and more overloaded with the ever-increasing number of new buildings and the ever-extending area of new paved surfaces;
4. The back-flow of sewage and rain water in buildings, may be prevented, to a certain extent, with automatic back-water or safety valves, properly installed and kept in good working order;
5. To supply with adequate piping capacity, sufficient water, to assure proper flushing of fixtures, preventing at the same time the back-flow of sewage into the water distribution system;
6. To prevent water wastes;
7. To lessen the discomfort caused by sewer air or gas, and to prevent the vermin infestation of buildings;
8. To reduce the number of asphyxia cases, attributed to lighting gas or carbon monoxide;
9. To ensure the respective advantages which complete plans and specifications give to all parties interested, owners, architects, engineers, contractors, plumbers, when the cost of the work must be established.

Outside the hazards of faulty installations, the discharge in a plumbing system of any substance liable to deteriorate or obstruct it should be prevented and certain precautions taken. In consequence, blow-off pipes should be connected to a condenser, greasy wastes separated by means of grease traps, all inflammable and volatile products intercepted by means of special equipment, and finally, acid substances neutralized, before the discharge of all such waste in a public sewerage system. Moreover the solid waste from stables and similar places must be intercepted by means of appropriate cesspits; such cesspits should also be used to retain earth, sand, etc., carried away with subsoil water collected in open-jointed tile drains installed around foundation walls, etc.

Plumbing by-laws require special tests during and after completion of an installation:

1. A water or air test on the roughing-in or before the installation of fixtures and before piping is concealed;
2. A smoke test after the installation of fixtures.

The latter test is also occasionally made to locate sewer air or gas leaks in existing buildings.

We are now aware that a plumbing system may become a danger to public health, or at least cause annoyance to the occupants of dwellings, even when such a system, after having been tested as above specified, is found air- and water-tight.

A plumbing system, among other things, includes one or more pipes, etc., and the necessary fixtures for the discharge of sewage from a building; it may only comprise a drain connected to the public sewerage system and a soil stack extended above the roof. To the latter, which is a vertical pipe, trapped fixtures may be connected directly to or through branches. These traps are intended to prevent the entrance of sewer air or gas, and even vermin, from public sewers. Fixture overflows are so protected when connected above trap seals.

Trap water seals of a minimum height of two inches may be siphoned at the time of flushing of one or more fixtures, because of the partial vacuum created. If a soil pipe is of sufficient size to allow for both the discharge of sewage and a certain amount of ventilation, the danger is remote. Nevertheless, in apartment houses and in buildings several storeys in height, a separate venting system is necessary. The latter may be defined as pipes intended to ventilate or ensure air circulation in a plumbing system, to prevent water-seal siphonage, etc. It is generally recognized that the permanency of water seals can only be assured by means of appropriate vents. The size of the latter should be in proportion to the size of the soil pipes served, to the volume of sewage discharged, and to the respective lengths of soil and vent lines.

A plumbing system may become a source of danger or annoyance not only when fixture traps are not properly sealed and vented, but also when fixtures are subject to another form of back-siphonage, especially by submerged inlets. If such inlets to the fixture were brought well above the rim, siphonage would not occur. Bathubs and similar fixtures may also function like elevated storage tanks, and supply water to the fixtures located on lower floors, should there occur sufficient decrease in pressure in the feed pipes.

By no means should a plumbing fixture, device or arrangement be permitted which may provide an interconnection between a potable distributing water system and a drainage system, or permit or make possible the back-flow of sewage into the water system. To this end, the numerous types of connections or devices used with domestic, industrial or clinical fixtures or equipment which are potential hazards, should either be eliminated or avoided, namely: submerged inlets or connections already referred to, common waste and supply lines, direct sewer connections, cellar drains or aspirators operated by water ejectors, unprotected flushometer valves connected directly to w.c. bowl supply pipes, etc. Flush valves may be protected by mechanical vacuum breakers, some of which offer a good degree of protection, and goose-neck pipes may be attached to certain submerged inlets of fixtures to provide an air gap (3).

It is of interest to note, in passing, that the sanitary by-laws of the City of Paris not only forbid the installation of devices which are a potential danger, but forbid their possession as well.

The Chicago epidemic of 1933 which caused 1,409 cases of amoebic dysentery with 98 deaths, and which was traced to certain plumbing defects in two contiguous hotels, supplied in part by a common water system, may be again referred to, even after such a period of years. Owing to the Chicago Fair, the above cases were distributed in 400 municipalities, 43 states and 3 Canadian

provinces. About 33 per cent of the persons infected were Chicago residents. The two major points of pollution were two cross-connections in one of the two hotels, which joined an overhead sewer to a condenser discharge pipe, and to an old wooden plug in an overhead sewer, permitting leakage into a cooled drinking-water tank (4).

Flooding

In the largest cities, cellar or basement flooding is responsible, each year, for the loss of important sums of money, and is also a source of great annoyance. The application of a few simple principles could attenuate or diminish these inconveniences. Waterproofing of walls, floors, etc., does not always remedy this situation, as well as the use of subsoil open-jointed tile drains, and automatic back-water valves.

The main causes of flooding may be divided into the following (5) :

1. Where it happens in a location not provided with public sewers;
2. Where the level of public sewers is above that of cellars or basements;
3. Where sewage, at the time of rain storms of high intensity, backflows into buildings.

In the first two cases, flooding is usually due to seepage, which may be remedied by having the foundation walls as nearly waterproof as possible, and by making provisions for pumping infiltration or subsoil water to the ground or sewer level. There are on the market excellent electric pumps which can be used for this purpose.

Where sewage outlets are located below the level of the public sewers, the responsibility lies with owners, who must take the necessary means of protection.

Where cellars or basements are liable to be flooded during rain storms of high intensity, through gorging and overflowing of public sewers, all sewage outlets below grade level should either be avoided or eliminated. Where plumbing fixtures or sewage outlets must be installed in such cellars or basements liable to be flooded, back-water valves may be taken advantage of, and provision made for the discharge of the contents of such fixtures, etc., directly into the public sewerage system. These valves should be installed, however, only on branch lines, in such manner as not to interfere with the venting of fixture traps, the ventilation of the public sewerage system, and finally, with the free discharge of rain water in the said system. Such valves are useless unless constantly kept in good working order.

A law amending the charter of the City of Montreal (5 Geo. VI, chap. 73) gives it the authority to protect itself against eventual floodings and damages resulting therefrom. The prescriptions which amend article 300 of Act 62, Victoria, chap. 58, etc., are as follows:

" . . . to oblige every owner of immovable property to install therein a safety-valve or other safety appliance in order to prevent any back-flow of water from the sewers. The city shall not be responsible for damages resulting from flooding occasioned by failure to install a safety-valve or other safety appliance

in accordance with a by-law enacted in virtue of this paragraph. This paragraph must be in effect only until May 1st, 1944.

"No action shall lie against the city for damages caused by the backing up of a sewer to goods, merchandise, objects or effects kept for any purpose whatever in a cellar, basement or sub-basement, if the claimant has already received compensation from the city for a similar occurrence at the same place and has not subsequently thereto installed in the cellar, basement or sub-basement a support, raised at least one foot from the floor and placed at least one foot from the outer walls, for keeping thereon all such goods, merchandise, objects or effects.

"The burden of proof that such protection has been provided shall be upon the claimant. In the event of water from the back-flow rising to over one foot in depth, this article shall not apply."

Although sanitary engineers have solved the problem of supplying safe water, by means of filtration, chlorination, etc., they are now confronted with the problem of preserving its sanitary qualities until it reaches the consumer. Fortunately, plumbing hazards are now receiving more attention. In the past, damage to property by leaks or flooded cellars was mainly considered. There has also been a tendency to limit plumbing hazards to untrapped fixtures or unsealed traps, and proper trapping and venting was found to be a remedy, notwithstanding the greater hazard referred to above. It is only a few years ago that the pollution of potable water, through cross-connections and back-siphonage, was found to be a potential danger. For this reason, we are inclined to believe that if investigations were made today of certain past mysterious water-borne epidemics, in the light of this modern conception of sanitary science, it would be possible in several cases to determine their causes or origin.

A great deal could be done to diminish these hazards, as well as other plumbing-borne diseases (6) through the observance of elementary rules of hygiene and sanitation and, above all, through the enforcement of modern plumbing regulations by qualified inspectors in all municipalities of 5,000 or more of population. To this end, the first step to be taken would consist in the adoption of a provincial plumbing code or of municipal codes. In addition, to cover all buildings in the municipalities of the Province of Quebec and all persons engaged in the plumbing trade in these communities, an amendment to its Pipe Mechanics' Act would become necessary, to give effect to the requirements of plumbing codes after their enactment.

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THE NEED FOR FEDERAL GOVERNMENT ASSISTANCE IN PUBLIC HEALTH

THE war has reemphasized the urgency of conserving health in Canada. Every provincial medical officer is acutely aware of the needs in his province and can present evidence that cannot be refuted concerning the necessity of financial assistance to make possible the services so urgently required. A study of the health problems in each province reveals work which must be neglected until funds are available. Further advances in public health in Canada are dependent on financial assistance from the Federal Government to the Provinces.

In some provinces the most urgent problem is the control of tuberculosis. In other provinces where tuberculosis control is well advanced, funds are not available for the expansion of rural health services, in the form of health districts, county health units, or combined areas. In every province the expenditure for tuberculosis control, including sanatorium care, closely approximates or even exceeds the expenditure of the Health Department for all other services. The result is that some essential preventive services are not adequately provided. In 1937 the total expenditure by Provincial Health Departments amounted to slightly more than six million dollars and a little more than half this amount was required for the maintenance of sanatorium patients and the conduct of the tuberculosis control program. An amount equal to the total expenditure of the Departments, including the expenditure for tuberculosis control, is required yearly for grants to general and public hospitals; and an amount one and a half times the provincial health expenditure, including tuberculosis, is required for the maintenance of mental hospitals. In all, the maintenance of patients in general hospitals, sanatoria, and mental hospitals, requires today an expenditure of at least twenty million dollars. All this must be borne by the Provincial Governments under the terms of the British North America Act. The urgency of the application of the principles of preventive medicine in all its fields is recognized. All the funds that are available for the application of preventive medicine, however, amount

to not more than two million dollars—one-tenth of the amount that is being expended for the hospital care of patients.

One of the most urgent needs is the provision of adequate full-time health services, both in rural and urban areas. The needs of towns and small cities are just as urgent as those of strictly rural areas. The achievements of county health units in Quebec, of health units in Alberta, British Columbia and Manitoba, and of health districts in Nova Scotia and New Brunswick, demonstrate the value of this form of organization. Municipalities alone cannot provide these essential services: there must be assistance from the Provincial Governments and, in turn, assistance from the Federal Government to the Provinces. If adequate funds are available for the conduct of public health work there is no need to fear a shortage of trained personnel. Enlargement of public health services in Canada has been largely a matter of the past decade. There are now more than three hundred physicians in Canada serving as medical officers of health who have taken a post-graduate course in public health. Similarly, in the nursing field many nurses have taken post-graduate courses and are serving in communities throughout Canada as public health workers. During this period provision has been made by the Canadian Public Health Association, with the cooperation of the Provincial Departments of Health, for the qualifying of sanitary inspectors. Increasing numbers of physicians and nurses are becoming interested in public health work as a career. If adequate remuneration for their services is provided, there is no question as to the supply of essential trained personnel.

In the United States, the provision of funds under the Social Security Act in 1937 has resulted in a striking advance in public health services in every State. What is of great significance is that the granting of Federal funds to the States has resulted in greatly increased appropriations for public health being made by both State and municipal authorities. It cannot be said that Federal assistance has diminished the extent of State participation in public health or has reduced municipal appropriations. In venereal disease control, a new nation-wide program has been made possible by Federal participation. It has made possible effective programs in each State participating and has proved to be the only way of adequately dealing with this tremendous problem, namely, on a national basis.

It is to the Federal Government that the people must look for leadership. The Honourable Ian Mackenzie in his recent addresses has shown an intimate knowledge of the needs and has left no doubt that he desires to see consummated a plan for adequate health services throughout the Dominion. It is the desire of every member of the Canadian Public Health Association that the needs which the Minister has expressed may be given the most earnest consideration by the Government and that action will be taken which will permit Canada to demonstrate what can be done to improve and strengthen national health.

THE ASSOCIATION'S WORK DURING 1940-41

(Part IV)

REPORT OF THE PUBLIC HEALTH EDUCATION SECTION

IN accordance with its belief that the teachers of elementary as well as high schools are important factors in the dissemination of health information, the Public Health Education Section conducted a survey of the health education programs in Canadian teacher-training institutions in an effort to determine what preparation the teacher has for this task. This study included thirty-one English-speaking institutions, nine of which were affiliated with universities and colleges as faculties or departments of education and were for graduate students only.

TABLE 1
ENGLISH-SPEAKING TEACHER-TRAINING INSTITUTIONS IN CANADA
1940-1941

PROVINCE	GRADUATE (For graduates in arts, science, etc.)		UNDERGRADUATE		TOTAL	
	Schools	Students	Schools	Students	Schools	Students
Prince Edward Island.....	..	..	1	125	1	125
Nova Scotia.....	3	30	2	373	5	403
New Brunswick.....	..	..	1	234	1	234
Quebec.....	..	..	1	142	1	142
Ontario.....	1	250	9	1160	10	1410
Manitoba.....	1	33	2	216	3	249
Saskatchewan.....	1	40	3	890	4	930
Alberta.....	1	47	2	517	3	564
British Columbia.....	1	15	2	280	3	295
TOTAL.....	8	415	23	3937	31	4352

Reports were received from all thirty-one schools. In the Province of Quebec the system for teacher-training is somewhat different, since most of the institutions are Roman Catholic and have a separate system. Questionnaires were sent to seventy-two schools and replies were received from thirty. The same questionnaire as was used for the English-speaking institutions was translated into French for Quebec. We are well pleased with the number of replies, as they give a fair cross-section of the work being carried on.

The form of the questionnaire was as follows:

HEALTH SURVEY IN TEACHER-TRAINING INSTITUTIONS

General Information:

Name of school or college
Principal
Number of teaching staff—
 Whole time
 Part time
Number of students enrolled 1940-41
Length of entire course

Health Service:

Is a physician employed by the institution?
 Whole time?
 Part time?
Is a nurse employed by your institution?
 Whole time?
 Part time?
Is a dentist employed by your institution?
 Whole time?
 Part time?
Is a mental hygienist available for consultation?
Is each student required to have a physical examination?
By whom is this examination done?
 Student's family physician?
 Physician paid from students' fund?
 Physician supplied by local or provincial health department?
Is physical examination complete?
 (Kindly enclose history forms used, if available)
Are the following tests included in the examination?
 Wassermann—or its equivalent
 Tuberculin
 X-ray
 Schick
 Dick
 Urinalysis
 Haemoglobin
Is any provision made for immunization against—
 Smallpox?
 Diphtheria?
 Scarlet fever?
Is any provision made for the correction of defects?
Are students refused admission to school because of defects which cannot be corrected,
 such as paralysis, heart disease, etc.?
Is there any form of health insurance plan or hospitalization plan in operation?

Health Teaching:

As far as this subject is concerned, would you be kind enough to let us know how much time is devoted to health in the curriculum, and what phases are covered. We would be interested in knowing who teaches the course, and if time is allowed for practice teaching by the students.

A detailed report of the study will appear in the JOURNAL in the near future, but some of the main points might be summarized here.

A. In English-Speaking Schools.

1. Medical examinations are made of all prospective teachers. There is variation in the completeness of this examination, but all the provinces except two supply physicians for this work; in Saskatchewan and New Brunswick the examinations are done by the family doctor.
2. Some sort of check for tuberculosis is done, either skin test, followed by X-ray examination of the reactors, or X-ray or fluoroscoping of all students.
3. Schick, Dick, and Wassermann tests are carried out by some institutions, but there is no uniformity in this regard.
4. Most provinces carry on immunization against smallpox for unvaccinated students, though it is not always compulsory.
5. Dental services are conspicuous by their absence,—either for consultation or treatment.
6. Consultation with a mental hygienist or psychologist is available in most schools.

B. In French-Speaking Schools.

The survey of French-speaking institutions is at present not complete. Almost without exception, however, physical examinations are done, usually by the health officer, in the district. Either tuberculin testing, chest X-raying, or both are done routinely in most schools.

As far as health teaching is concerned, there is a great deal of variation. In graduate schools particularly, little attention is given this subject. Normal schools handle the subject in a more detailed fashion, but to date our study is far from complete and it is felt that in order that it be so, a comparison with the health curriculum in elementary schools is necessary.

May 31, 1941.

STEWART MURRAY, *Chairman.*
A. MARGUERITE SWAN, *Secretary.*

REPORT OF THE COMMITTEE ON THE CERTIFICATION
OF CAUSES OF DEATH

CONTINUING progress is recorded in the several fields of interest of the Section of Epidemiology and Vital Statistics as relating to mortality statistics. As in the report for 1939-40, the subjects of the Committee's deliberations will be discussed under the appropriate headings.

SECTION I: EDUCATION OF MEDICAL STUDENTS IN THE PRINCIPLES
AND PRACTICE OF DEATH CERTIFICATION

The distribution by the Committee of an exercise on death certification, introduced in 1937, has proved to be of definite assistance in the teaching of the principles and practice of death certification. The exercise has been made available in both French and English and has been used in the various medical

schools throughout the Dominion. Certain changes have been made in the exercise, following correspondence with the instructors in the medical schools who have used it. This cooperation was most helpful and has resulted in a definite improvement in the teaching value of the exercise. Enquiries from teachers in faculties of medicine in the United States make it evident that this contribution toward instruction in the practice of death certification is appreciated.

In connection with such teaching, the Handbook on Death Certification which was issued by the Dominion Bureau of Statistics has proved to be of very great value. It is hoped that the Dominion Bureau will be able to publish a revision, incorporating the Fifth Decennial Revision of the International List of Causes of Death, and that the Committee may again make suggestions in regard to the material contained therein so that it may be of the greatest possible value in instruction.

SECTION II: STILLBIRTH REGISTRATION

There is very little to add to the information included in the last annual report of the Sub-committee on Stillbirth Registration and Certification. The Dominion Bureau of Statistics intends to undertake a routine tabulation of stillbirths by cause in accordance with the general plan recommended by the Commission revising the International List of Causes of Death in 1938. Certain modifications and additions to the International List (1938) will be made by the Dominion Bureau of Statistics, however, as a means of meeting clinical needs more effectively and certain suggestions have been made by the Committee in this connection. This is in accordance with the recommendations of this Committee in its fourth annual report.

The question of the classification of stillbirths by cause was canvassed further by the Committee, having in mind the difficulties which are currently met in coding certificates routinely. It is probable that the study of maternal morbidity being conducted in Manitoba will throw further light on many of these problems, and Dr. Noel R. Rawson, who is a member of this Committee, may be able, at a later date, to offer suggestions. Meanwhile it is desirable that no arbitrary selective rulings be applied in classification, other than ones of a broad general character.

There is need for a further consideration of the present Canadian definition of stillbirth for statistical purposes. Practice in the United States and Great Britain is quite different and the coupling of a minimum period of twenty-eight weeks' gestation with absence of *respiration* as criteria of a stillbirth is so far peculiar to Canada, other countries not having adopted, even for statistical purposes, the League of Nations' definition of 1925. It is hoped that the Sub-committee on Stillbirth Registration and Certification will be able to report further on their findings.

SECTION III: CONFIDENTIAL CERTIFICATION

At the 1939 meeting of the Association held in Toronto the Sub-committee on Confidential Death Certification was formally appointed. It was hoped that

studies similar to those conducted in the Province of Quebec would be undertaken in at least two other provinces for the purpose of checking with the physicians recording each death as to the modification, if any, of the return made if the medical certificate had been considered confidential.

In the Province of Quebec the confidential death certificate is in use for the year 1941. The certificate consists of the regulation form to which has been attached a flap. This flap can be folded and sealed over the medical certificate on the face of the statistical return. On the obverse side of the flap are three squares, one of which must be initialed by the physician indicating the cause of death in a general way, so that the municipal authorities may issue the burial certificate according to the proper regulations. A report of the results for the year 1941 will be included in the next report of this Committee. The members of the medical profession in the Province of Quebec are very pleased with the closed certificate. It is gratifying that those in charge of the collection of vital statistics in municipalities are also satisfied. The practical demonstration in the Province of Quebec of the feasibility of the confidential death certificate will have an important influence upon death certification in Canada. It is desirable that further studies should be made in other provinces so that a broad assessment of general experience may be possible and in order to ascertain clearly the possible improvement in accuracy of cause of death statistics which might result from a general plan of confidential certification in Canada.

SECTION IV: CURRENT USE OF THE NEW MEDICAL CERTIFICATE OF DEATH

No further opportunity has been available to the Committee for pursuing additional analyses of the use of the new medical certificate or for studying the influence which it may possibly have on official statistics of cause of death should rules of choice for joint cause selection be abandoned in favour of accepting the opinion of the physician as expressed on the death certificate.

It is planned that Canada will continue to employ the established method of selecting a single cause for tabulation, where joint causes are stated, by the application rules. In this connection, it is of interest that United States procedure will replace that formerly employed, and that a dual tabulation by old rules and new rules will be carried out for 1941 in order to afford some idea of the possible influence of this change in procedure.

It is the hope of the Committee that arrangements may be made to study small samples of from one hundred to five hundred death certificates in each province with a view to assessing them in a preliminary fashion in regard to the success of the certificate in presenting the cause of death. The present medical certificate was designed to permit selection in accordance with the arrangement of causes and the abandoning of rules of selection when two or more causes are given is highly desirable from the clinical standpoint. The suggested studies would indicate the limitations and value of the present certificate in properly presenting the cause of death as indicated by the physician and would, if sampling studies were repeated at appropriate intervals, indicate when certification was

sufficiently in accord with requirements to safely permit the adoption of classification based on the physician's opinion as to the cause of death as expressed by the form of statement on the medical certificate, in place of selection by rule.

SECTION V: THE FIFTH DECENTNIAL REVISION OF THE INTERNATIONAL LIST OF CAUSES OF DEATH

It is planned that the International List of Causes of Death and its various sub-divisions as set out in the United States Manual will be followed in Canada for the next ten years. It is also planned that the various rules and provisions incorporated in this manual will also be made applicable to Canada. The decision to pursue this policy is undoubtedly related to lack of time in which to prepare a manual specifically for Canadian use. There are very definite disadvantages in pursuing the above policy in so far as Canada is concerned. Formerly, English rules of selection formed the basis of Canadian practice and the new procedure will involve a complete reversal of preference in many cases and disturb any comparability that existed between English and Canadian statistics on causes of death. The decision to code and tabulate causes of death by old and new rules of selection for 1941 will help to bridge the gap.

SECTION VI: CLASSIFICATION OF THE CAUSES OF SICKNESS

The Committee are informed that classification of morbidity in the Armed Forces of Canada is presently based upon the so-called Standard Morbidity Code for Canada, which is essentially that originally developed for use in morbidity studies among Federal Civil Servants. In this connection it is recalled that in 1937 the Dominion Council of Health appointed a special committee to review the whole question of the classification of the causes of sickness and to prepare a report. In 1938, the Dominion Council of Health approved the report of this committee, including a recommendation for the official adoption of a diagnosis code comprising 331 items which it was proposed should be revised as soon as the fifth decennial revision of the International List became available. The code was subsequently approved by this Section. It was based on a short list of 474 rubrics (preliminary) drafted for hospital use by the Division of Medical Statistics of the Ontario Department of Health (abridged on the basis of experience from a code containing 1,300 items employed in a study of 70,000 hospital cases) and on the list developed for use by Dr. F. S. Burke of the Department of Pensions and National Health in studies of morbidity among Federal Civil Servants.

Revision of this code in accordance with the 1938 revision of the International List has not yet been achieved, but the Committee is of the opinion that the important advantages of this code in arrangement and content are such that it should not be lost sight of as the basis of a Canadian morbidity code. While the contemplated steps towards its revision and the preparation of an index have had to be held in abeyance, the approval given to the code by the Dominion Council of Health as well as by this Section justifies further pursuit of its

evolution. It is therefore proposed that a special committee of this Section be designated to continue the work of revision and the preparation of an index at the earliest opportunity.

In October 1940, the Ontario Department of Health released Part V of the Survey of Public Hospitals in Ontario, comprising a study of hospital morbidity and its causes. This report is of particular interest because it is the first study of its kind in Canada. Covering some 70,000 hospital cases it presents an analysis and discussion of the frequency and duration of the diseases and conditions responsible for hospitalization.

The committee notes with interest the publication (in August 1940) of a Diagnosis Code for Use in Tabulating Morbidity Statistics, prepared by the United States Public Health Service and the United States Bureau of the Census working in collaboration with a representative committee of consultants. This code is prepared in two forms, an abridged list of 95 categories with a two-column code, and a detailed list of 527 categories with a three-column code. A feature of this detailed code is the provision for designating the circumstances under which any accident occurred as well as the nature of injuries sustained. Progress has also been made in the preparation of an index to the two codes.

The work of the Committee on the Certification of Causes of Death has missed for part of the year the services of Dr. A. H. Sellers, who is now serving as an officer in the Royal Canadian Air Force. From the inception of the Committee Dr. Sellers conducted many of the studies and gave much time to the work of the various committees. As chairman of the Sub-committee on Stillbirth Registration and Certification, he gave special attention to the classification of causes of stillbirths.

May 31, 1941.

R. D. DEFRIES, *Chairman.*

PUBLIC HEALTH ADMINISTRATION

APPOINTMENT OF JOHN T. MARSHALL, M.A., AS CHIEF OF THE VITAL STATISTICS BRANCH

MR. JOHN T. MARSHALL has been appointed Chief of the Vital Statistics Branch in the Dominion Bureau of Statistics, succeeding the late Mr. W. R. Tracey.

Mr. Marshall entered the Civil Service of British Columbia twenty-five years ago and for the past twenty-four years he served in the Vital Statistics Branch of the Provincial Board of Health. In 1929 he was appointed Inspector of Vital Statistics and ten years later he became Director of the Division of Vital Statistics and Supervisor of Medical Records.

During his years of service to the Province of British Columbia he set up record systems for the various divisions of the Provincial Board of Health and acted as an advisor on records and statistics to the Child Welfare Division and Welfare Field Service. In 1936 he supervised the statistical analysis of a province-wide hospital survey and advised the Inspector of Hospitals on the organi-

zation of a hospital-record system. In the field of vital statistics Mr. Marshall has made many contributions. In 1932 he wrote "Vital Statistics in British Columbia", a volume which has been of considerable value to persons interested in Canadian vital statistics, and in 1938 a comprehensive article on "The Development of Public Health in British Columbia."

Mr. Marshall has been a prominent member of the Section of Vital Statistics in the American Public Health Association and is a member of the American Statistical Association. In October 1940 he was elected President of the American Association of Registration Executives for 1941.

Mr. Marshall has a wide and detailed knowledge of the subject of vital statistics, together with a keen interest and enthusiasm for the betterment of health through a close integration of statistics and public health.

DIPLOMA IN PUBLIC HEALTH, SCHOOL OF HYGIENE, UNIVERSITY OF TORONTO

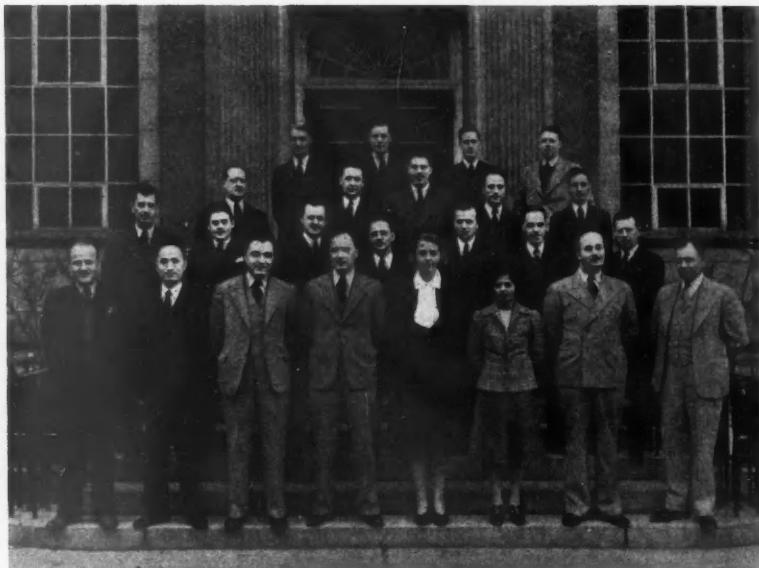
TWENTY-ONE physicians are enrolled for the course leading to the Diploma in Public Health at the School of Hygiene, University of Toronto, for the academic session 1941-42: G. S. Baldry, St. Boniface, Manitoba; M. Bergeron, St. Hyacinthe, Quebec; J. A. Blais, Thetford Mines, Quebec; P. P. Bouchard, Murray Bay, Quebec; W. G. Brown, Toronto, Ontario; E. A. D. Glen-Campbell, Jamaica, B.W.I.; T. M. Huang, China; M. Huot, Ste. Anne des Monts, Quebec; U. Laferriere, Berthierville, Quebec; L. R. Mackey, Brandon, Manitoba; M. G. McCallum, Stettler,

Alberta; C. E. Mather, Wawanesa, Manitoba; J. M. Morin, Cookshire, Quebec; Roger Nadeau, Quebec; E. I. Ostry, Whitemouth, Manitoba; J. A. Pelletier, Gaspe, Quebec; O. C. Powers, Burford, Ontario; DeW. S. Puffer, Toronto; C. H. Wilson, London, Ontario; F. O. Wishart, Toronto; and D. A. Wyke, Toronto. John R. Card of Ayton, Ontario, will commence the work with the second term.

Twenty-five physicians, shown in the photograph, received the Diploma in Public Health following their attendance during the session 1940-41. Since the inception of the course in

1912, two hundred and forty-two physicians have received the Diploma. The great majority are engaged in public health work in Canada, serving

as directors of full-time health services or as members of the Provincial Departments of Health or the Department of Pensions and National Health.



Back row: Paul L'Hereux, St. Boniface, Manitoba; W. H. Cruickshank, Toronto, Ontario; J. H. Baillie, Toronto, Ontario; F. O. R. Garner, Kamloops, British Columbia.

Third row: J. G. E. Chabot, Montreal, Quebec; C. L. Pearson, Red Deer, Alberta; D. S. Fleming, Montreal, Quebec; J. L. C. Doucet, Dalhousie, New Brunswick; J. M. Tremblay, Baie St. Paul, Quebec.

Second row: E. Poisson, Richmond, Quebec; R. A. Kelly, Delta, Ontario; E. Jacques, Farnham, Quebec; B. Genest, Lac Megantic, Quebec; J. B. Allary, St. Jean, Quebec; R. F. Bruno, Weedon, Quebec; O. Leclerc, Rimouski, Quebec.

First row: D. Beaulieu, Gaspe, Quebec; C. Sung, Soo Chow, China; M. J. DeKoven, Whitemouth, Manitoba; W. A. MacDonald, Highridge, Alberta; Eleanor Riggs, Vancouver, British Columbia; Stella Abidh, San Fernando, Trinidad, B.W.I.; J. A. Mahoney, Kenora, Ontario; D. V. Currey, St. Catharines, Ontario.

The Diploma was awarded also to Dr. H. Siemens, of Lamont, Alberta.

CURRENT HEALTH LITERATURE

These abstracts are intended to direct attention to articles that have appeared in other journals during the past month. Any of the journals referred to may be borrowed for three days or longer if desired. Address requests to the secretary of the Editorial Board.

The Use of Pooled Human Serum in Experimental Pertussis

VARIOUS reports in the literature speak favourably of serum against whooping cough. In the present study the authors sought an experimental basis for the use of pooled normal adult serum as a prophylactic against whooping cough in young children. Pooled normal human serum, adult contact serum, and normal rabbit serum were tested. The sera were administered to mice intraperitoneally about four hours before a sub-lethal injecting dose of *H. pertussis* was given intranasally. The mice were killed seven days later and the cut surface of the lung cultured for *H. pertussis*. Highly significant protection was shown by three of six batches of normal human serum tested and slight protection by the other three. Variation in the results appeared to depend at least partly on the number of sera pooled to make up the different batches. In two cases the protection afforded by the normal human serum exceeded that of the adult contact serum. It is thus established beyond doubt that pooled normal human serum contains protective antibodies against *Haemophilus pertussis* infection in mice. Clinically good results might be expected in young non-immunized children exposed to infection were such serum administered in sufficient amount as early as possible after exposure.

E. A. North and G. Anderson, Med. J. Australia, 1941, June 21, p. 754.

Studies in Immunity to Pertussis

THE efficacy of pertussis vaccine receives further support in this paper. A group of 379 infants and young

children, all of premature birth, were used in the study, with 140 siblings serving as familial controls. The vaccinated children received 8 cc. of a Phase I pertussis vaccine containing 10,000 million bacteria per cc. given at six months of age in four doses one week apart.

Whooping cough developed in 15.5 per cent of 58 vaccinated children exposed to the disease and in 78.7 per cent of 47 controls with known exposures. Cases in the vaccinated group were milder than in the unvaccinated and all but three occurred more than one year after vaccination. Revaccination one or two years after the original inoculation would be a wise procedure.

The remainder of the paper is devoted to a study of the opsonocytophagic test as a means of measuring immunity following administration of vaccine and the natural disease. The results obtained indicate that the test is a reliable index of immunity to pertussis and bear out the clinical surveys which have shown the protective power of the vaccine.

Alwin C. Rambar and others, J.A.M.A., 1941, 117: 79.

Pertussis Prophylaxis with Alum-Precipitated Vaccine

IN April 1938 the United States Public Health Service began epidemiological studies on the public health aspects of the prophylactic use of two doses of alum-precipitated pertussis vaccine. The study was carried out with painstaking care in order to obtain statistically sound results. Details of the plan are described whereby (1) identical and representative injected and non-injected groups were obtained, (2) observations on these groups were carried over a length of time sufficient to give an adequate experience of pertussis and (3) the diagnosis of pertussis was uniformly established. The vaccine, which is described in some

detail, was given in two 1-cc. doses, with a 4-week interval between doses. This represented a total dosage of 20 billion organisms as compared with the 80 to 120 billion usually given of the regular pertussis vaccine.

The results are carefully analysed and set out in tabular form. Prior to the period of observation the experience of the two groups of children in regard to measles, mumps, chicken-pox and pertussis was as nearly equal as chance sampling variation in random groups would be likely to show. During the observation period, June 1938–March 1941, this equality continued for the first three but not for pertussis. In the vaccinated group of 493 children there were 51 cases of pertussis, an incidence of 10.34 per cent and in the control group of 432 children there were 150 cases, an incidence of 34.72 per cent.

Joseph A. Bell, Pub. Health Rep., 1941, 56: 1535.

Diphtheria Bacilli in Floor Dust

The experiments described in this paper resulted in the detection of gravis, intermedius and mitis strains of diphtheria bacilli in floor dust in the neighbourhood of diphtheria patients. In some cases large numbers of bacilli were recovered and so far as tested the gravis and intermedius strains were always virulent. Virulence was maintained in naturally infected dust for as long as three months *in vitro* and five weeks on the floor. Contamination of air from floor dust was studied by exposing plates of Hoyle's medium three feet above the floor during and after sweeping. Considerable numbers of diphtheria bacilli were recovered from the air of a ward where no oil had been used on the floor and none was recovered where the floor had had three treatments with spindle oil. Two applications of spindle oil greatly

reduced the number of diphtheria bacilli appearing on the plates but did not exactly eliminate them. The oil exerted only a mechanical and not a disinfectant action. In a ward (unoiled floors) containing diphtheria patients small numbers of diphtheria bacilli were demonstrated in the air at times when sweeping was not being done. These bacilli might have come from floor dust or, as experiments demonstrated, from bed clothes. Suggestive evidence of the possible transfer of such air-borne diphtheria bacilli to the throats of patients was obtained. Some preliminary experiments on disinfection of floor dust were carried out and relatively strong antiseptic solutions appear to be necessary.

W. E. Crosbie and H. D. Wright, *The Lancet*, May 24, 1941, p. 656.

Epidemiological Investigation of Rural Typhoid with the Aid of the Vi Agglutination Test

THE use of the Vi test in epidemiological investigations on endemic typhoid in a "typical rural county" is described and results are compared with those previously obtained by stool examination alone or stool examination following serological screening using H and O agglutination. In searching for typhoid carriers both these latter methods have been proved unsatisfactory for reasons which are fully discussed in the article. When the Vi agglutination test was applied as a selective screen only 8 per cent of the individuals examined were brought under suspicion. Four of these were found to be carriers by isolation of the typhoid bacillus from urine and stool cultures. Stool cultures were negative from all persons with negative Vi agglutination in this group.

Calista P. Eliot and W. Ross Cameron, Am. J. Pub. Health, 1941, 31: 599.

**The Circulation Department requires copies of the JOURNAL
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